



Environment Monitoring Report

Project Number: 40643
January 2014

PRC: Xinjiang Urban Transport and Environmental Improvement Project

Prepared by the Project Management Office of Xinjiang Uygur Autonomous Region Government

For Xinjiang Uygur Autonomous Region Government and the city governments of Altay, Changji, Hami, Kuytun, and Turpan

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Asian Development Bank

**Xinjiang Urban Transport and Environmental
Improvement Project
ADB Loan: 2526-PRC**

**The 3rd External Environment
Monitoring Report**

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**The 3rd External Environment
Monitoring Report
-Altay City**

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EXECUTIVE SUMMARY

This Semi-annual Environmental Monitoring Report (EMR) describes the environmental monitoring and mitigation measures undertaken with regards to the Chinese Environmental Impact Assessment (EIA) and the Summary Environmental Impact Assessment (SEIA) provisions during the construction and operation periods from January to December 2013 of Altay Component in the Xinjiang Urban Transport and Environmental Improvement Project.

In this report we briefly provide: (i) background, (ii) environmental institutional structure and responsibility, (iii) documentation review and compliance with environmental covenants, (iv) mitigation measures undertaken to minimize adverse environmental impacts arising from the construction and operation, (v) environmental monitoring and status of ambient environmental quality, (vi) public consultation and grievance redress, (vii) institutional strengthening and training, and (viii) conclusions and recommendations.

As of December of 2013, the Altay component is estimated to be 99% completed overall. In the reporting period, enough attention has been paid on air pollution prevention and noise control etc., and the mitigation measures and monitoring program were generally carried out satisfactorily. Through the implementation of these measures, the destruction to the environment has been lowered to a minimum level possible during construction and operation.

The atmosphere and noise level of the environmental sensitive receivers nearby the component have been monitored periodically in July of 2013. The results indicate that the air and acoustic environmental quality at all the sensitive receivers can meet applicable national environmental quality standards.

However, to some certain extent there were still unavoidable impacts on the environment. Some recommendations are put forward to make improvement on environmental protection in next stage.

ABBREVIATIONS

ADB	=	Asian Development Bank
CSC	=	construction supervision company
DMF	=	design and monitoring framework
EA	=	executing agency
EIA	=	environmental impact assessment
EMC	=	environmental management consultant
EMP	=	environmental management plan
EPB	=	environmental protection bureau
IA	=	implementing agency
NO ₂	=	nitrogen dioxide
O&M	=	operation and maintenance
PM ₁₀	=	particulate matter smaller than 10 micrometers
PMO	=	project management office
PPTA	=	project preparatory technical assistance
PRC	=	People's Republic of China
SEIA	=	summary environmental impact assessment
SO ₂	=	sulfur dioxide
XJEPB	=	Xinjiang Environmental Protection Bureau
XJPMO	=	Xinjiang Uygur Autonomous Region project management office
XUAR	=	Xinjiang Uygur Autonomous Region
XUARG	=	Xinjiang Uygur Autonomous Region government

WEIGHTS AND MEASURES

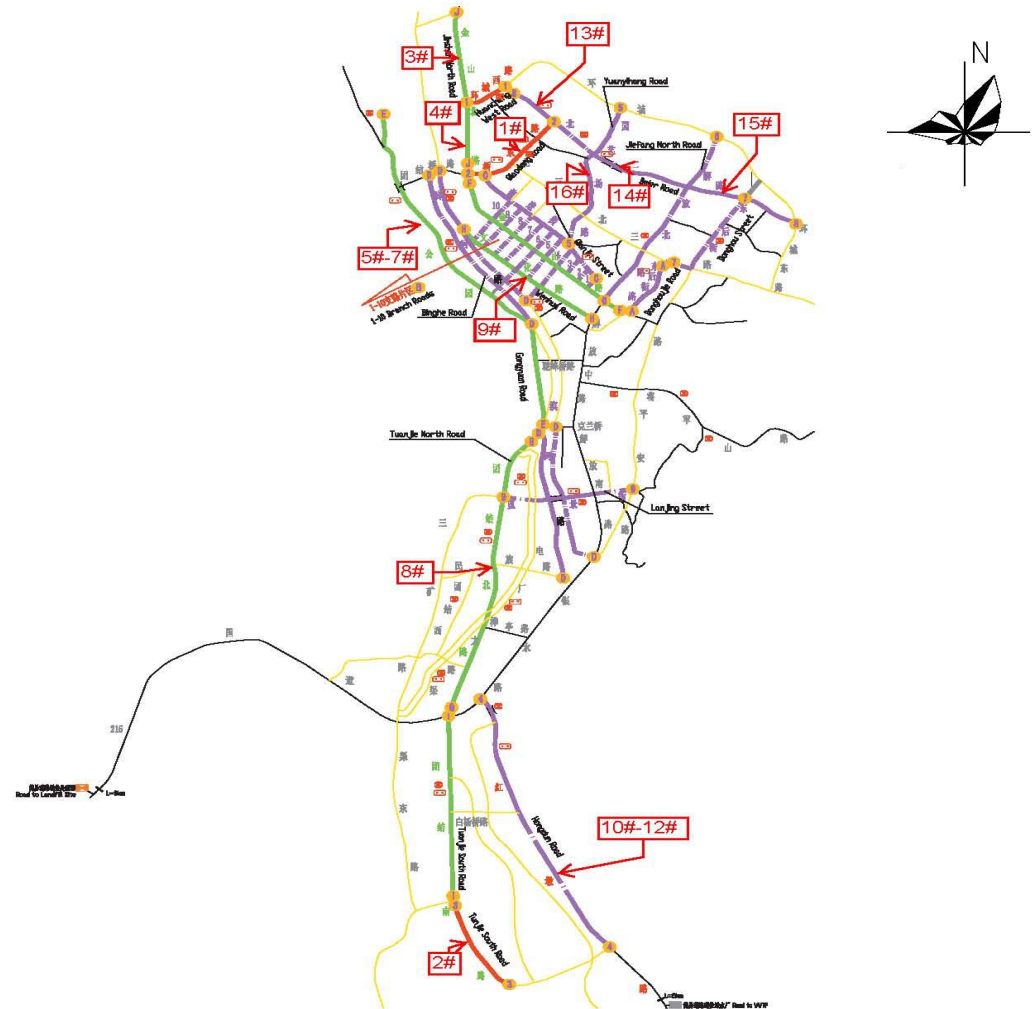
dB(A)	–	A-weighted decibel
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道路规模一览表
Table of Road Works

序号 Serial Number	编号 Number	道路名称 Name of road	红线宽度(米) Width of red line (m)	道路长度(米) Length of road (m)
1	①-①	环城西路 (Huancheng West Road)	8	512.91
2	②-②	新东路 (Qiaodong Road)	16	1138.31
3	③-③	团结南路 (Tuanjie South Road)	30	619.30
4	④-④	红塔路 (Hongdun Road)	27	2014.08
5	⑤-⑤	园艺场路 (Yuanychang Road)	16	1232.88
6	⑥-⑥	解放北路 (Jiefang North Road)	20	1394.98
7	⑦-⑦	东后街 (Donghou Street)	80	773.69
8	⑧-⑧	北二路 (Beier Road)	16	2090.20
9	⑨-⑨	宽街街 (Lanjing Street)	9	799.61
10	⑩-⑩	东后街 (Donghoujie Road)	8	462.10
11	⑪-⑪	1~10支路 (1-10 Branch Roads)	11~12	3089.05
12	⑫-⑫	前进街 (Qianjin Street)	14	1150.00
13	⑬-⑬	滨河路 (Binghe Road)	3	4541.97
14	⑭-⑭	公园路 (Gongyuan Road)	23	2078.53
15	⑮-⑮	金山路 (Jinshan Road)	27	1447.19
16	⑯-⑯	金山北路 (Jinshan North Road)	27	1318.57
17	⑰-⑰	文化路 (Wenhua Road)	25	1027.23
18	⑱-⑱	团结南路 (Tuanjie South Road)	26	1339.50
19	⑲-⑲	团结北路 (Tuanjie North Road)	29	2234.30
Total				29262.4

图例 (Legend)

- | | |
|---|---|
| — 本期新建道路
Proposed New Roads | — 桥梁
Bridge |
| — 本期改扩建道路
Roads to be Widened or Extended | ● 公共厕所
Public Toilet |
| — 本期改造道路
Roads to be Renovated or Reconstructed | ✕ 垃圾收集站
Garbage Collection Station |
| — 已建道路
Existing Roads | ■ 现状(新建)污水厂
Wastewater Treatment Plant (WTP) |
| — 规划道路
Planned Roads | ■ 垃圾填埋场
Landfill Site |



Map of Atmosphere and Acoustic Environmental Monitoring Locations (1#-16#) of Altay Component
阿勒泰子项目空气和声环境监测点位 (1#-16#)示意图

I. INTRODUCTION

A. General Introduction

1. As defined in the domestic Chinese EIA and summary environmental impact assessment (SEIA) for Xinjiang Urban Transport and Environmental Improvement Project (the Project) under ADB Loan, environmental monitoring report (EMR) has to be prepared in order to evaluate and assess overall project activities to ensure the effective implementation of the environmental management plan (EMP). The first EMR for the construction period up to the end 2011 was disclosed on the ADB's website in June of 2012, the second report for the period up to the end 2012 was disclosed in March 2013 on ADB's website.
2. This report is prepared by the Altay City Urban Transport and Environmental Improvement Project Management Office (Altay PMO) with the technical assistance from Altay Municipal Environmental Monitoring Station (Altay EMS), as the external environmental agency. The purpose of this EMR is to document the environmental management activities and compliance with the approved EMP of this Project by the end of 2013. This report is prepared in accordance with the environmental monitoring program as part of the EMP. As the third EMR, it will not only cover the construction phase, but also demonstrate compliance with the EMP for the operational stages. In line with targets aimed at reducing the negative environmental impacts of the component and in accordance with all the relevant specifications and standards of the PRC, as well as the policies of the Asian Development Bank(ADB), this report will emphasize: (i) progress made in implementing the EMP, (ii) implementation of mitigation measures, (iii) environmental loan covenants compliance, (iv) environmental monitoring compliance; (v) institutional strengthening and training, (vi) public consultation and GRM, and (vii) problems that have occurred and corrective actions taken.
3. The Xinjiang Urban Transport and Environmental Improvement Project is to be implemented in the cities of Altay, Changji, Hami, Kuytun, and Turpan in the Xinjiang Uygur Autonomous Region. The Project aims to improve urban road infrastructure, traffic management and safety, and environmental sanitation in the Xinjiang Uygur Autonomous Region (Xinjiang). The project consists of five components that seek to improve urban living conditions and public health, and protect the environment by upgrading and extending roads and sanitation infrastructure in the project cities. Based on specific transport conditions of the Project cities, the Project will (i) construct 37.4 kilometers (km) of new roads and upgrade 70.5 km of existing roads; (ii) install traffic signal systems, bus stops and bays, road furniture including road barriers, pedestrian crossings, signage, and marking; and (iii) construct and install environmental

sanitation facilities such as public toilets, garbage collection stations, trash cans, as well as provide solid waste management equipments.

4. Being located in the northern Xinjiang, Altay has common boundary with Mongolia, Russia and Kazakhstan (see the **Map 1.**), and enjoys unique geographical advantages. Thus Altay has played an irreplaceable role in regional cooperation between China and Central Asia countries. As a result of its superior geographic conditions and convenient channels to abroad, Altay has become the foreland of China opening to the west. The State Council had already approved opening four local ports, which include the second biggest port to Mongolia (Takeshenken port), Hongshanzui port, Jimunai port to Kazakhstan and Aheitubieke port. As the center of the region, it also has geographical advantages in international trade and cooperation of international technology & economy. It is fatal for Altay city to seize opportunities to accelerate environment infrastructure construction under the National Western Development Policy and to establish good investment environment so as to open to the outside world in wider range, exploit preponderant resources, develop local economy and improve people's livelihoods. With the implementation of Xinjiang 's strategy to open to the west, Altay has already become one of the biggest border open cities in Western China. However, its urban infrastructures are seriously out-of-dated and fail to meet the need of urban development compared with the sustainable growth of urban economy. So, the primary task to accelerate economic growth of Altay is to speed up construction of urban infrastructures. Based on these, Altay will improve urban integrated service functions, promote urban grade, stabilize urban image foundation, create favorable economic and social development space as well as harmonious living environment.. In the light of the aim to construct medium cities, Altay will finally realize harmonious & unified development of urban economic benefits, social benefits and environmental benefits.
5. Currently the major problems exist in urban road network of Altay as follows: i)The road network in old town was naturally formed without systematic planning, and there is still no smooth loop system of trunk road. The road span is unreasonable because of so many branch roads, T-shaped roads and broken end roads. ii)There are quite a few sandy soil roads at present with low hardening rate, which is no good for the improvements of urban environment image.iii) Unreasonable arrangement of road cross section, ambiguous road functions and lack of traffic facilities may bring out traffic disturbance. iv)The elevation of partial roads is higher than both roadsides, which will be difficult to arrange building facade and drain on both roadsides. v) Due to the financial limit, there are many disadvantages about roads built previously, such as low structural design standard, inferior carrying capacity of roadbed, low pavement design standard. All of these decrease traffic capacity to a large extent, weaken ability to deal with damage and lead to serious breakage and ageing phenomenon of road surface.vi)There is lack of ancillary facilities such as road lighting system, green belt, parking

lot and traffic facilities. What's more, municipal pipeline facilities are not well coordinated with each other.

B. Description Of The Component

6. The component, which covers the fast growing city of Altay, is designed to (i) improve the urban road infrastructure and achieve the environmental objectives approved in the city master plans and 11th Five-Year Plan 2006–2010, (ii) facilitate access to environmental sanitation facilities and enable their proper functioning, (iii) improve air quality and reduce dust pollution caused by poor surface road conditions, (iv) improve road safety and reduce traffic delay, (v) improve environmental hygiene and public health through the construction of sanitation infrastructure and provision of environmental sanitation equipment, (vi) introduce environmental management in urban downtown areas and expanding urban areas, and (vii) catalyze economic growth and improve poor people's well-being.
7. Sub-components. The component includes 19 urban roads construction in Altay, and relevant ancillary work such as green belt and roadway illumination, road maintenance and environmental sanitary facilities. The 19 roads with total length of 28.02 km include 3 new roads with a total length of 1590.35 meters, 10 expansion roads with a total length of 16986.68 meters, 6 upgrading roads with a total length of 9443.32 meters and 5 new bridges. The details are shown in **Table 1.1**.

Table 1. 1 Summary Description of the Project Subcomponents in Altay

Sub-component s	Description	
Road Works	New Roads	3 new roads (West Ring Road, Qiaodong Road and South Tuanjie Road) with a total length of 1590.35 meters
	Expansion Roads	10 expansion roads (Hongdun Road, Yuanyichang Road, North Jiefang Road, East Backstreet, Beier Road, Lanjing Road, East Backstreet Road, No.1-10 branch road, Qianjin Street and Binhe Road) with a total length of 16986.68 meters
	Upgrading Roads	6 rebuilding roads (Gongyuan Road, Jinshan Road, North Jinshan Road, Wenhua Road, South Tuanjie Road and North Tuanjie Road) with a total length of 9443.32 meters
Ancillary Works	Bridges	5 new bridges (1 at the crossing between Hongdun Road and Yinshui Road, 2 near the crossing between Beier Road and West Ring Road, 1 near the stadium of Lanjing Road, 1 at Gongyuan Road) with a total length of 281 meters
	Environmental Sanitary Work	10 public toilets, 20 garbage collection rooms, 844 waste bins, 111 garbage bins, 1 garbage compression car, 1 motor sweeper, 2 snow-clearing trucks

C. Implementation Progress

8. The below **Table 1.2** and **Table 1.3** shows the latest project and contract packages implementation progress by December, 2013.

Table 1. 2 Project Implementation Progress in Altay (By December 2013)

Component	Total cost estimate	Implementation Description	Completed (%)	Originally Planned (%)	Planned activities in the first half year of 2014
Altay Urban Roads and Environmental Sanitation	CNY 255 million	construction of road, bridge, environmental sanitation, road maintenance facilities, street lighting and sidewalks	98%	90%	Under operation

Table 1. 3 Contract Packages Implementation Progress in Altay (By December 2013)

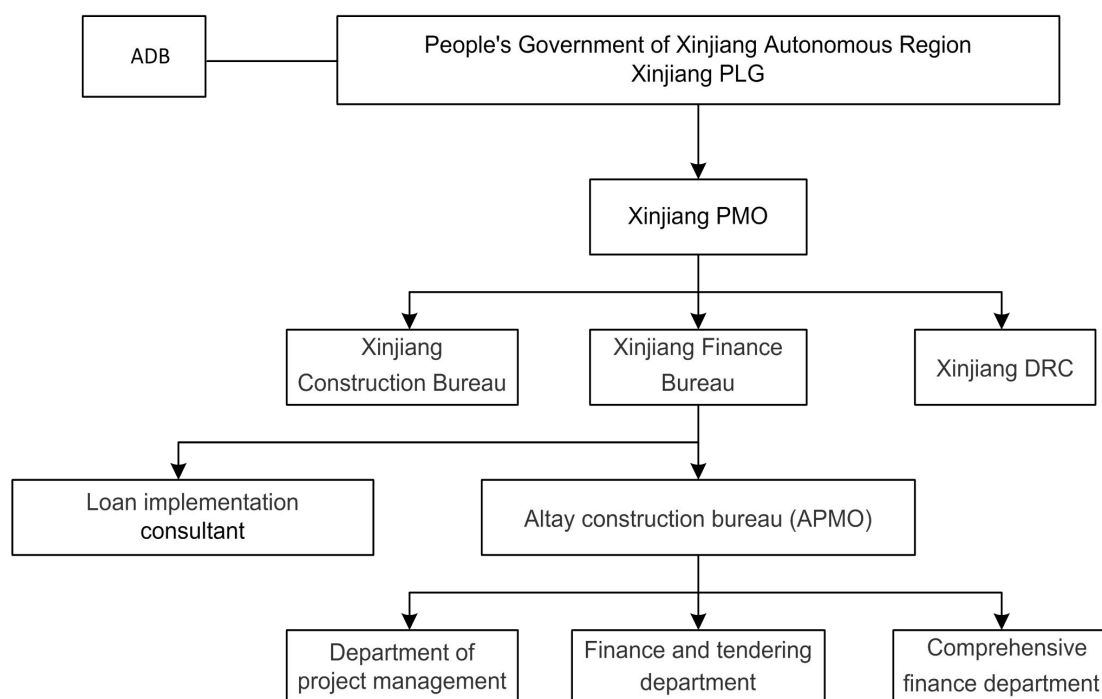
No.	Contract Packages	Descriptions	Start-End time	Main construction activities during reporting period	Completed (%)
1	A1	Civil works and lighting facilities in Gongyuan Road, Jinshan Road, North Jinshan Road, Wenhua Road, Tuanjie Road, North Tuanjie Road	2011.4 - 2013.6	Under construction	100% in total
2	A2	Civil works and lighting facilities in 110 branch road, Qianjin Road, Yuanyichang Road, Beier Road, West Ring Road, Qiaodong Road	2010.8 - 2014.5	Under construction	94%
3	A3	Civil works and lighting facilities in Hongdun Road, South Tuanjie Road, North Jiefang Road, East Backstreet, East Backstreet Road	2010.8 - 2014.5	Under construction	94%
4	A4	Binhe Road, Lanjing Road and other ancillary facilities	2010.7 - 2013.6	Under construction	100%
5	A5	Bridges and other ancillary facilities	2010.8 - 2013.6	Under construction	100%
6	B1	Street lighting	2011.8 - 2013.6 (supply and installation)	Under implementation	100%
7	B2	Road maintenance and environmental sanitary facilities	2011.8-2013.6 (supply)	Under implementation	100%
8	D2	Public toilets	2012.4-2012.8	Under construction	100%

II. ENVIRONMENT RESPONSIBILITIES AND AUTHORITIES

A. Institutional Structure And Responsibilities For Environmental Management & Supervision

9. The organization diagram of the Altay Component is shown as follows in the **Figure 2.1**:

Figure 2. 1 Organizational Setup of The Altay Component



10. The Altay Construction Bureau is the IA for of the Altay Urban Transport and Environmental Improvement component and responsible for the overall management of urban infrastructure projects in Altay, from planning, design to implementation. As an IA for the component, the Altay Construction Bureau will be in charged by the Altay PMO. The Altay Municipal Maintenance Department will operate and maintain the roads and street lighting; the Altay Landscaping Management Department will maintain the street landscaping; and the Altay Environmental Sanitation Department will operate and maintain the sanitation facilities.
11. An environmental management system, consisting of implementation, inspection, monitoring, reporting, and initiating corrective actions or measures, was set up prior to project implementation. In the design

stage, Altay PMO and IAs shared the EMP to the design institutes for incorporating mitigation measures into the detailed designs of the component. The EMP was reviewed and confirmed at the end of the detailed design, and was finally incorporated into the bidding documents and signed civil contracts. To ensure that contractors will comply with the EMP's provisions, Altay PMO and IAs prepared and provided the following specification clauses for incorporation into the bidding procedures: (i) a list of environmental items to be budgeted by the bidders in their proposals; and (ii) environmental clauses for contract conditions and specifications. (See the Part B of this Chapter)

12. An EMU was established within the IA prior to the project implementation.

The responsibilities of the EMU cover coordinating and supervising the EMP implementation. EMU is headed a deputy general manager of the IA. The IA also recruited/arranged environmental officers who also serve as the focal point for grievance redress. Meanwhile, Altay City Environmental Protection Bureau is responsible for supervising daily operation of the environmental management system.

13. The environment management organizational diagram of Altay Component is shown as follows in **Figure 2.2**. The detailed information of every entry points of the environmental management system is shown in the below **Table 2.1**.

Figure 2. 2 Environment Management Organizational Arrangement of Altay Component

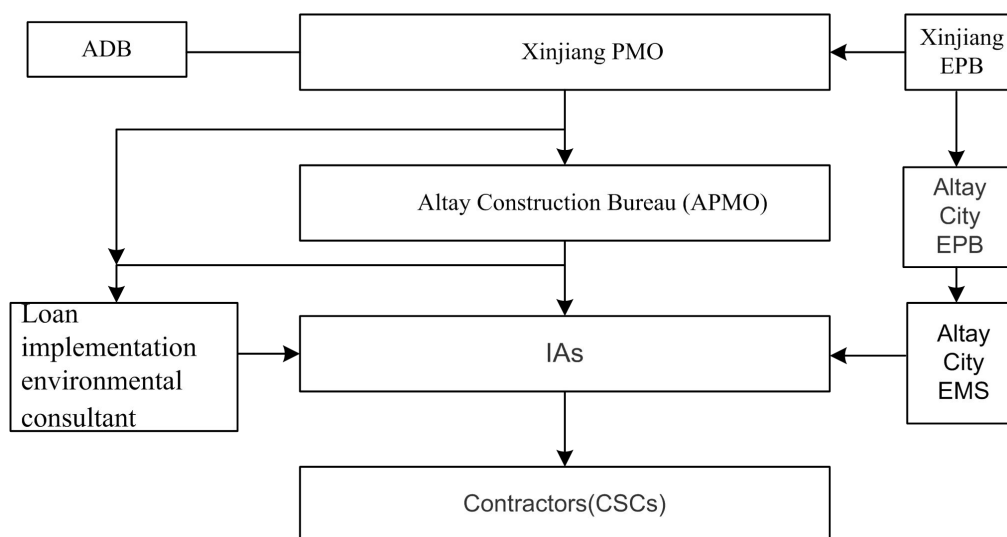


Table 2. 1 Description Of Entry Points In The EMS For Altay Component

Entry Points	Responsibilities	Contact Person And Detailed Information
APMO	Overall environmental management	Mr. Shi Weirong/Mr. Yuan Hui, Director/Staff of APMO, Add.: Room 514, Altay city government office building, Yinshui Rd., Altay city Tel: 0906-2311943 Email: xjaltswr@sina.com
Loan implementation environmental consultant	Technical assistance with APMO , AEMS and constructors /CSCs	Easen International Co., Ltd.
AEPB	Supervising implementation of mitigation measures and environmental monitoring	Add.: Jiudaoxiang, Wenhua Rd. Altay city Tel: 0906-12369 0996-2135650
AEMS	External environmental monitoring	Mr. Zhang Wanhua, principal, Add.: No. 10, South Jiefang Rd. Altay city Tel: 0906-2128509
Contractors /CSCs	Implementation/supervision of mitigation measures and internal environmental monitoring	A1: Ili Construction Co., Ltd./ Xinjiang Tianli Construction Co., Ltd
		A2: Zhongbei Transportation Construction Co., Ltd/ Kezheng Construction Supervision Co., Ltd Altay Branch
		A3: Zhongbei Transportation Construction Co., Ltd/ Xinjiang Tianli Construction Co., Ltd
		A4: Ili Construction Co., Ltd./ Xinjiang Tianli Construction Co., Ltd
		A5: Zhongbei Transportation Construction Co., Ltd/ Xinjiang Tianli Construction Co., Ltd
		D2: Ili Construction Co., Ltd./ Kezheng Construction Supervision Co., Ltd Altay Branch

B. Incorporation of Environmental Requirements into Project Contractual Arrangements

14. It is noted that the environmental considerations have been incorporated into the design, bidding documents and civil works contract to ensure environmentally responsive procurement. The costs of all mitigation measures during construction have been covered in the issued bidding documents and signed contracts. The EMP is also attached as an enclosure of the signed contracts.

15. All civil works contracts contain provisions on workers' and community, environmental protection and protection of physical and cultural relics. The environmental clauses are summarized in the below **Table 2.2**.

Table 2. 2 Environmental Clauses in The Civil Works Contracts

Subject	Environmental Clauses in The Signed Civil Works Contracts
I. Workers' and Community Safety	<ul style="list-style-type: none"> ● The contractor will take precautionary measures to ensure workers' safety. Protective equipment will be worn at all times for any person entering the construction site. Safety training shall be undertaken for workers and staff. In case of bodily harm to any worker, the contractor will have full responsibility for medical care and compensation according to PRC labor law. The contractor will also be responsible for any bodily harm and property damage caused by construction activities on site or in the vicinities, including land occupation. ● The contractor is required to strengthen safety management, especially in regard to the use of flammables, explosives, toxic and corrosive substances. Before the start of construction, the contractor shall submit to the independent construction supervision agency an emergency preparedness and response plan.
II. Environmental Protection	<ul style="list-style-type: none"> ● The contractor will comply with all relevant laws and regulations on environmental protection, and will take precautionary measures to minimize any potential impact on the environment. It will be responsible for restoring and rehabilitating the environment to its original state at its own costs. An environmental management plan (EMP) with mitigation measures will be prepared and submitted to the construction supervision agency for approval before the commencement of construction. ● The contractor will treat and dispose its construction wastewater, sewage from workers' camps and solid wastes properly so as not to cause any damage to the environment, drinking water sources and public health. The disposal of spoils and solid wastes shall not obstruct flood ways and risk public safety. All slopes shall be protected with retention walls, proper drainage systems and vegetation to avoid geological hazards. Noise, dust, air emissions, wastewater and waste oils will be controlled to minimize annoyance to local communities.
III. Physical and Cultural Relics	<ul style="list-style-type: none"> ● All physical and cultural relics discovered at the construction sites are owned by the state. The contractor will report any such discoveries immediately to the local relics protection authority and in the meantime immediately inform the construction supervision agency. The contractor shall take effective measures to protect the unearthed physical and cultural relics. The contractor will be held responsible for

Subject	Environmental Clauses in The Signed Civil Works Contracts
	any loss of damage to the discovered relics, and prosecuted for any delayed and fraudulent reporting.

III. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATIONS MEASURES

16. During mid-term review in October of 2012, there are minor changes in the Altay component. Of which, 1 bridge was added, and 1 new road (South Tuanjie Road, 0.68 km, covered in the south urban area plan) and some sections (2.3km) of Honghun road were cancelled: And the procurement of 154 dustbins, 1 snow removing truck, 1 rear loader garbage truck, 4 public toilets; construction of 20 garbage collection stations was cancelled; while the procurement of 3 crane garbage trucks, 1 excavator, 3 wheel loaders, 1 aerial vehicles, 3 dumper trucks, 2 sets of rollers, 1 sprinkler spraying car set, 3 motor graders and 4 road patrol cars and 1 asphalt mixer was added:.. These above changes were justified as insignificantly. So there is no need to update the EMP and the corresponding environmental mitigation measures as well as environmental monitoring plan.
17. The implementation status of the mitigation measures, as proposed in the SEIA, is presented in the right column of the below **Table 3.1**. In summary, the mitigation measures have to date been implemented effectively.

Table 3. 1 Implementation of The Environmental Impact and Mitigation Measures

Subject	Potential Impact	Mitigation Measures	Estimated Cost	IA	SA	Implementation status
A. Design Phase						
Air	Pollution due to dust, asphalt fumes, and flue gas	<ul style="list-style-type: none"> • Reduce air pollution and protect air quality–sensitive receivers, such as mosques, schools, hospitals, and residential areas. • Properly protect vegetation and rehabilitate vegetation and ecology. • Locate the asphalt and sandstone mixing site and the pre-casting site at least 500 m downwind of mosques, schools, hospitals, and residential areas. • Monitor TSP on dirt roads to provide baseline data for future evaluation of air quality improvement on these roads. 	Included in the detailed design contract	DI	CB, EPB	Complied with.
Noise	Equipment noise during construction and traffic noise during operation	<ul style="list-style-type: none"> • Select low-noise equipment and design soundproof facility for main noise source. • Reduce noise pollution and protect noise-sensitive receivers, such as residential areas, schools, hospitals, and mosques. 	Included in the detailed design contract	DI	CB, EPB	Complied with.
Surface Water	Potential pollution from waste pollution from surface runoff and melting snow during operation	<ul style="list-style-type: none"> • Properly design construction schedules and working hours. • Locate the construction site the construction site from polluting the water bodies. • Avoid crossing irrigating channels or, if it cannot be avoided, build bridges and culverts. Mitigation measures such as wastewater collection ditches should be considered. • Formulate a flood protection plan to contain or divert floodwater runoff from the construction site and the facility. Such a plan should mitigate the impact on surface water to the greatest extent. 	Included in the detailed design contract	DI	CB, EPB	Complied with.

Soil and Water Conservation	Soil erosion and water and soil conservation during construction	<ul style="list-style-type: none"> • Optimize design, balance the amount of excavation and backfill works, and minimize vegetation deterioration and soil erosion caused by construction. • Properly design landscape (vegetation). The flora species planted, such as trees, shrubs, and herbs, should suit local conditions. Anti-erosion protection measures should also be considered, taking actual needs into account. • Design the road alignment to avoid the farmland or minimize, as far as possible, farmland acquisition. • Avoid impact on the farmland from waste and soil erosion. A proper waste disposal site should be selected. 	Included in the detailed design contract	DI	CB, EPB	Complied with.
Ecology	Land acquisition and vegetation deterioration	<ul style="list-style-type: none"> • Select the proper alignment to reduce ecological loss and increase landscaping compatibility. • Use local commercial C&D waste storage site to reduce the adverse impact on environment. • Fully utilize open space along road to reduce adverse impact on environment caused by temporary land occupation. • Consider the adaptabilities and diversity of tree species. 	Included in the detailed design contract	DI	CB, EPB	Complied with.
Cultural Heritage		<ul style="list-style-type: none"> • Appoint an archaeologist to develop a protocol for reporting and preserving archaeological artifacts found on-site during construction (archaeologist's costs to be included in the project documentation). 		IA	CB	Complied with.
Traffic	Residents' travel and construction traffic	<ul style="list-style-type: none"> • Develop a temporary traffic management plan for the construction phase to avoid impact on traffic flow during construction. 	Included in the detailed design contract	DI	CB	Complied with.
Resettle ment and Other Social Impact	Impact on residents and agriculture	<ul style="list-style-type: none"> • Design the road alignment to avoid environmentally sensitive receivers, such as farmland, residential areas, hospitals, schools, and mosque, and minimize, as far as possible, farmland and woodland acquisition. • Establish resettlement compensation measures. 	Included in the detailed design contract	DI	CB	Complied with.

Safety	Construction safety	<ul style="list-style-type: none"> • Consider environmentally friendly and energy conservation requirements in construction material and equipment selection and specify them in the tender documents. • Carry out construction safety procedures to reduce the likelihood of construction accidents. Safety requirements should be specified in the tender documents. 	Included in the detailed design contract	DI	CB	Complied with.
B. Construction Phase						
Air	Dust	<ul style="list-style-type: none"> • Adopt advanced construction techniques and select appropriate machinery and transportation vehicles in compliance with national emission standards. • Organize material storage well, separate stone and sand materials, store concrete in a separate storage place and minimize transportation required, clean up C&D waste on time. • Spray water on excavated construction site. • Avoid truck overload, cover materials during transport, regularly clear the dust and spray water on haul road. • Set up hoarding around construction site, particularly for sensitive receivers near roads, including schools, mosques, hospitals, and residential areas. • Stop construction during strong winds and cover the stockpile. • Limit vehicle speeds on unpaved haul roads to less than 8 km/h. 		Contractor	CB, EPB	Complied with.
Noise	Noise caused by construction equipment and vehicles	<ul style="list-style-type: none"> • Strengthen construction arrangements and avoid construction at nighttime. • Use hydraulic instead of pneumatic tools. • Use low-noise machinery. • Install temporary noise barrier around noisy machinery. • Avoid concrete mixing; use premixed concrete. • Enforce traffic controls on-site and limit the use of horns. • During transportation, loading, and unloading of construction materials, prohibit the use of horns when vehicles pass sensitive receivers. 		Contractor	CB, EPB	Complied with.
Water	Wastewater from workers	<ul style="list-style-type: none"> • Strengthen management; discharge domestic wastewater to the nearby sewer network or have it treated by on-site package plant 		Contractor	CB, EPB	Complied with.

	Wastewater generated from machine	<ul style="list-style-type: none"> • Build storage tank, drainage ditch, temporary sedimentation tank to treat wastewater from excavation and equipment cooling or washing before discharge to sewer network. • Maintain construction equipment regularly to avoid accidents during construction. • Locate storage site and sand mixing site at least 100 m away from water bodies. Moreover, regular water spraying during construction can reduce pollution. • Locate asphalt mixing site downwind at least 500 m away from water bodies and enclose the site to avoid contamination of the water bodies. • Strengthen water use management, and avoid introduction of chemicals during vegetation rehabilitation to reduce water pollution. 		r		
	Wastewater from storage					
	Wastewater from asphalt Wastewater from chemicals					
Solid Waste	Refuse generated by construction site	<ul style="list-style-type: none"> • Collect and clean up waste on time and dispose of it in a landfill. • Sort the construction waste; recycle or reuse if possible. • Dispose of the spoil at the designated site. 		Contractor	CB, EPB	Complied with.
Soil and Water Conservation	Soil erosion and water and soil conservation	<ul style="list-style-type: none"> • Set up hoarding around the construction site, build a temporary drainage ditch and hoarding for temporary living quarters, install hoarding and drainage for temporary roads, regularly water haul roads, cover the soil and aggregate materials on the truck during transport. • Cover the site with over 5 cm deep soil after spoil storage; build drainage ditch and slope protection during site formation. • Develop rainy-season construction plan to prevent surface runoff and soil erosion. • Protect the farmland and channels along the road being constructed. 		Contractor	CB, EPB	Complied with.
Temporary Traffic Management	Traffic congestion caused by construction	<ul style="list-style-type: none"> • Compel construction vehicles to follow the approved directions during passage. • Divert construction traffic from morning and afternoon peak traffic hours. • Regulate traffic at road crossings. • Build interim roads. • Select transport routes to reduce disturbance to regular traffic. • Set up traffic signs. • Reinstate the roads as soon as possible. 		Contractor	CB, Traffic Management Department	Complied with.

Ecology	Affected vegetation and trees	<ul style="list-style-type: none"> • Relocate the trees affected by the construction; avoid cutting trees and restore the vegetation after construction. • Lay out the passage route for construction equipment and staff to avoid the farmland and vegetated area. • Keep the topsoil layer (30 cm thick) of farmland during excavation for use in restoring vegetation along the road after construction. 		Contractor	CB, EPB	Complied with.
Cultural Heritage	Cultural heritage affected by construction	<ul style="list-style-type: none"> • Implement protocols developed by the archaeologist. • Should cultural heritage be discovered during the construction, stop construction, protect the site, and report to the authority. • Have the archaeologist supervise the reporting and preservation of any artifact finds (archaeologist's costs to be included in the rest of project documentation). 		Contractor	CB	Complied with.
Workplace Health and Safety	Health of workers	<ul style="list-style-type: none"> • Maintain efficient sanitation in the construction area; check the health of workers. • Strengthen safety training and management to ensure the safety of construction. • Equip construction workers with personnel protection utilities, such as earplugs and helmets, when necessary. 		Contractor	CB	Complied with.
Associated Facilities	Water supply, wastewater collection, central heating, and gas	<ul style="list-style-type: none"> • For the construction or replacement of wastewater pipelines, prepare a detailed construction program to avoid spillage of untreated wastewater, including a plan for temporally diverting the wastewater within the collection system. • In the construction or replacement of water supply pipelines, implement the construction in phases to avoid temporary interruptions in water supply to the affected residents. A detailed construction program will be designed and implemented and the affected residents will be notified 24 hours in advance to reduce the impact. Adequate water quality will be maintained throughout construction period. • Facilities for heat supply will normally be constructed only when the system is not in operation; therefore, no impact on users is expected. If the heat pipes and other facilities have to be constructed when the system is in operation, a detailed construction plan will be implemented, i.e., construction will be done during the warm season and some pipe sections will be drained. • Implement a detailed construction plan for gas pipelines and appoint an 	To be included in associated projects	Contractor	CB	Complied with.

		experienced construction team to install the connections.				
C. Operation Phase						
Air	Vehicle exhaust Odor from sanitation utility	<ul style="list-style-type: none"> • Develop and improve the exhaust control regulations and strengthen exhaust control management. • Implement exhaust monitoring procedures. Vehicles whose exhaust does not meet the requirement should be limited or prohibited. • Improve vehicle performance, and install exhaust purification devices, and use lead-free petrol to reduce the emission of air pollutants. • Develop the public transportation system to slow down the rapid growth of private cars. • Manage public toilets and garbage collection stations to ensure that no odor emission pollutes the air. • Increase the urban green coverage rate. 		TB, EPB	TB, EPB	To be complied with.
Noise	Noise from increasing traffic on the completed roads	<ul style="list-style-type: none"> • Install noise barriers or other mitigation measures in front of sensitive receivers when the noise levels exceed the standards. • Regularly monitor traffic noise in front of sensitive receivers. • Institute better traffic management to reduce noise caused by heavy traffic. • Maintain vehicles so as to meet the noise requirement. Noisy vehicles should be phased out gradually. • Install high-performance mufflers to lower the exhaust noise, and strictly limit speeds, especially at nighttime. • Plant more trees along both sides of the road, especially for sensitive receivers, such as schools and hospitals. • Improve the management of bus stop. 		TB, EPB	TB, EPB	To be complied with.
Odor	Odor from garbage collection stations and public toilets	<ul style="list-style-type: none"> • Prohibit the construction of new buildings within 100 m of the sanitary buffer from public toilets and garbage collection stations. • Strengthen management and maintenance. • Monitor the odor level regularly. 		TB, EPB	TB, EPB	To be complied with.

Water	Surface flow on the road and wastewater from car washing	<ul style="list-style-type: none"> • Reduce the use of deicing salt. The manual and mechanical method is recommended to reduce pollution. • Prohibit the construction of car washing and gas stations near channels and river courses. 		TB, EPB	TB, EPB	To be complied with.
Solid Waste	Off scum caused by road maintenance	<ul style="list-style-type: none"> • Consider reusing the off scum of asphalt or transporting it to locations approved by the local environmental authority. 		TB, EPB	TB, EPB	To be complied with.
Ecology	Vegetation destruction	<ul style="list-style-type: none"> • Continuously strengthen vegetation rehabilitation along roads to improve the urban environment. 		TB, EPB	TB, EPB	To be complied with.
Health and Safety	Traffic accident	<ul style="list-style-type: none"> • Prevent accidents during transportation of dangerous goods by providing appropriate conspicuous signs, etc. • During transportation of dangerous goods, prohibit smoking and parking near open flame or high temperature places. • Prohibit vehicles transporting dangerous chemicals from parking near sensitive receivers along the roads, where “No Parking” signs should be put up to avoid traffic accidents. 		TB, PSB	TB, EPB	To be complied with.

CO = carbon monoxide, EPB = Environmental Protection Bureau, EMS = environmental monitoring station, IA = implementing agency, Leq = equivalent sound pressure level,

NO2 = nitrogen dioxide, SA = supervision agency, SS = suspended solids, TSP = total suspended particles

IV. SUMMARY OF ENVIRONMENTAL MONITORING

A. Responsibilities Of Environmental Monitoring

18. According to the EMP of Xinjiang Urban Transport and Environment Improvement Project, Altay Municipal Environmental Monitoring Station was hired by Altay PMO to conduct the external environmental monitoring on the major environmental impact factors (such as NO₂, PM₁₀, CO and noise) during construction and operation periods. The CSCs are responsible to supervise the contractors to implement the mitigation measures in accordance with the EMP. Altay PMO (city construction bureau) is responsible for supervising the whole environmental monitoring work, while the loan implementation environmental consultant provides technical guidance and assistance.

B. Internally Monitoring and Reporting

19. During construction, the CSCs conducted the site visits at least once per day. The corrective action will be initiated once any incompliance occurs. The detailed internal environmental monitoring program and mitigation actions is reported monthly by the CSCs to Altay PMO/IA and Altay city EPB. The Altay PMO, with the assistance of the project loan environmental consultant, has monitored and assessed overall project activities under the DMF, including environmental targets. The results of internal monitoring by the CSCs have been reflected in the monthly basis, also had been incorporated in the semi-annual project progress report, submitted by XJPMO to the ADB, to show the EMP implementation progress information and the environmental performance of the contractors, IAs, and loan implementation environmental consultant. In these progress reports, the implementation status of environmental mitigation measures and environmental monitoring had been included.

C. Environmental Quality Targets, Sampling And Analytical Methods

20. The environmental protection targets related to the environment monitoring are mainly as follows in the **Table 4.1**.

Table 4. 1 List of Environmental Protection Targets of Altay Component

Environmental Factors	Name of Roads	Ref. No.	Environmental Protection Targets	Applicable National Standard
Atmosphere	Qiaodong Road	1	Kelanhe vacation village	Ambient Air Quality Standard, GB3095-1996 II
	South Tuanjie Road	2	Xinjiang Altay animal husbandry and veterinary vocational school	GB3095-1996 II
	North Jinshan Road	3	No.1 high school of Altay	GB3095-1996 II

Environmental Factors	Name of Roads	Ref. No.	Environmental Protection Targets	Applicable National Standard
	South Jinshan Road	4	No.3 high school of Altay	GB3095-1996 II
	Gongyuan Road	5	Hump scenic spot	Ambient Air Quality Standard,GB3095-1996 I
		6	Health school of Altay	GB3095-1996 II
		7	kindergarten	GB3095-1996 II
	Tuanjie Road	8	Xiehe hospital	GB3095-1996 II
	Wenhua Road	9	No.1 middle school of Altay	GB3095-1996 II
	Hongdun Road	10	Vocational school of Altay	GB3095-1996 II
	Beier Road	13	mosque	GB3095-1996 II
	Middle of Beier Road	14	Graveyard of minority	GB3095-1996 II
	Beier Road	15	No.3 middle school of Altay	GB3095-1996 II
	Yuanyichang Road	16	mosque	GB3095-1996 II
Noise	Qiaodong Road	1	Kelanhe vacation village	Environmental quality standard for noise, GB3096-2008 Class- I
	South Tuanjie Road	2	Xinjiang Altay animal husbandry and veterinary vocational school	GB3096-2008 Class- II
	North Jinshan Road	3	No.1 high school of Altay	GB3096-2008 Class- II
	South Jinshan Road	4	No.3 high school of Altay	GB3096-2008 Class- II
	Gongyuan Road	5	Hump scenic spot	GB3096-2008 Class- I
		6	Health school of Altay	GB3096-2008 Class- II
		7	kindergarten	GB3096-2008 Class- II
	Tuanjie Road	8	Xiehe hospital	GB3096-2008 Class- II
	Wenhua Road	9	No.1 middle school of Altay	GB3096-2008 Class- II
	Hongdun Road	10	Vocational school of Altay	GB3096-2008 Class- II
	Beier Road	13	mosque	GB3096-2008 Class- II
	Middle of Beier Road	14	Graveyard of minority	GB3096-2008 Class- I
	Beier Road	15	No.3 middle school of Altay	GB3096-2008 Class- II
	Yuanyichang Road	16	mosque	GB3096-2008 Class- II

21. **Standard Sampling and Analyzing methods, Evaluation Standard:**
Table 4.2 shows the standard monitoring method, detection limit, and the applicable standard code for each of the monitoring parameters.

Table 4. 2 Standard Analyzing Methods and Evaluation Standard

Media	Monitoring Item	Sampling and Analyzing Method (Standard No.)	Detection Limit	Evaluation Standard		Standard Limit
Air	NO ₂ (mg/m ³)	Ambient air— Determination of nitrogen oxides— N- (1-Naphthyl) ethylene diamine dihydrochloride spectrophotometric method(HJ 479—2009)	0.005	<i>Ambient Air Quality Standard</i> (GB3095-1996) and its revision list	Class I	0.08
					Class II	0.12
	PM ₁₀ (mg/m ³)	Specifications and test procedures for PM10, sampler (HJ/T 93-2003); Determination of atmospheric articles PM10 and PM2.5 in ambient air by gravimetric method (HJ 618-2011)	0.01		Class I	0.05
					Class II	0.15
	CO	Air quality-- Determination of carbon monoxide-- Non- dispersive infrared spectrometry(GB 9801-88)	0.3		Class I and II	4.00
Noise	Equivalent Continuous A Sound (Leq,dB(A))	Environmental quality standard for noise (GB3096-2008)	0.5	<i>Environmental Quality Standard for Noise</i> (GB3096-2008)	Class I	55(day)/ 45(night)
					Class II	60 (day)/ 50 (night)

D. Monitoring plan and management

22. According to the environmentally sensitive targets and possible major environmental impacts of construction and operation phases specified in the EIA and SEIA, along with the actual project progress, Altay Municipal EMS conducted field survey and environment monitoring. The work scope for the third external environment monitoring of the project includes: i) The location and time of monitoring is determined according to the actual progress of the project, construction contents and routes. ii)The key monitoring locations are selected near sensitive sections, such

as residential areas, schools, and so forth. The selection of monitoring locations should cover all the protection targets specified in the EIA and SEIA, and take the population density, construction contents, scope of construction site and project progress into consideration as well. In a word, the monitoring locations should be selected at the representative points. iii) While monitoring, brief notes are taken, including the major contractors, construction contents, daily schedule, and equipments. Currently most of the roads in Altay component have been opened to traffic. So the environmental monitoring was mainly focused on the operational stage instead of construction stage. It should be noted that two monitoring locations on Hongdun Rd. (11# and 12 # in the previous two reports) are cancelled due to scope change in the component. And the numbers of other 14 monitoring locations are keep unchanged to ensure consistency with the previous reports.

Atmosphere Monitoring Plan

23. Operational air quality monitoring plan is shown as below:

- Monitoring Items: NO₂, PM₁₀, CO
- Monitoring location: Sensitive points, including Qiaodong Road, South Tuanjie Road, North Jinshan Road, South Jinshan Road, Gongyuan Road, Tuanjie Road, Wenhua Road, Hongdun Road, Beier Road, middle part of Beier Road, Yuanyichang Road.
- Monitoring time: 2 continuous days, from July 3-4, 2013, with sampling time of NO₂ at least 18 hours per day, PM₁₀ at least 12 hours per day and CO at least 18 hours per day .

Details are shown in the **Table 4.3**.

Table 4. 3 Atmosphere External Environment Monitoring Plan During Operation of Altay Component

Name of Roads		Ref. No	Monitoring Locations	Monitoring Item	Monitoring Time
New Road	Qiaodong Road	1	Kelanhe vacation village	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	South Tuanjie Road	2	Xinjiang Altay animal husbandry and veterinary vocational school	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
Upgradin g Road	North Jinshan Road	3	No.1 high school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	South Jinshan Road	4	No.3 high school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Gongyuan Road	5	Hump scenic spot	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
		6	Health school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
		7	kindergarten	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Tuanjie Road	8	Xiehe hospital	NO ₂ , PM ₁₀ , CO	July 3-4, 2013

Name of Roads		Ref. No	Monitoring Locations	Monitoring Item	Monitoring Time
	Wenhua Road	9	No.1 middle school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
Expansion Road	Hongdun Road	10	Vocational school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Beier Road	13	mosque	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Middle of Beier Road	14	Graveyard of minority	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Beier Road	15	No.3 middle school of Altay	NO ₂ , PM ₁₀ , CO	July 3-4, 2013
	Yuanyichang Road	16	mosque	NO ₂ , PM ₁₀ , CO	July 3-4, 2013

Acoustic Environmental Monitoring Plan

24. Noise monitoring plan is shown as follow:

- Monitoring Items: Equivalent A sound level (L_{Aeq})
- Monitoring location: Sensitive points of noise.
- Monitoring time: 2 days, from July 3-4, 2013, twice per day, once in the daytime and once in the nighttime.

Details are shown in the **Table 4.4**.

**Table 4. 4 Acoustic External Environment Monitoring Plan
During Operation of Altay Component**

Name of roads		Ref. No	Monitoring Locations	Monitoring Item	Monitoring Time
New Road	Qiaodong Road	1	Kelanhe vacation village	L _{Aeq}	July 3-4, 2013
	South Tuanjie Road	2	Xinjiang Altay animal husbandry and veterinary vocational school	L _{Aeq}	July 3-4, 2013
Upgrading Road	North Jinshan Road	3	No.1 high school of Altay	L _{Aeq}	July 3-4, 2013
	South Jinshan Road	4	No.3 high school of Altay	L _{Aeq}	July 3-4, 2013
	Gongyuan Road	5	Hump scenic spot	L _{Aeq}	July 3-4, 2013
		6	Health school of Altay	L _{Aeq}	July 3-4, 2013
		7	Kindergarten	L _{Aeq}	July 3-4, 2013
	Tuanjie Road	8	Xiehe hospital	L _{Aeq}	July 3-4, 2013
	Tuanjie Road Xiehe Hospital, Wenhua Road	9	No.1 middle school of Altay	L _{Aeq}	July 3-4, 2013

Name of roads		Ref. No	Monitoring Locations	Monitoring Item	Monitoring Time
Expansion Road	Hongdun Road	10	Vocational school of Altay	L _{Aeq}	July 3-4, 2013
	Beier Road	13	Mosque	L _{Aeq}	July 3-4, 2013
	Middle of Beier Road	14	Graveyard of minority	L _{Aeq}	July 3-4, 2013
	Beier Road	15	No.3 middle school of Altay	L _{Aeq}	July 3-4, 2013
	Yuanyichang Road	16	Mosque	L _{Aeq}	July 3-4, 2013

E. Monitoring Results

C1.1 Monitoring Results of Atmosphere

25. The Monitoring Results of atmosphere at operation stage are shown in the **Table 4.5**.

Table 4. 5 Monitoring Results of Atmosphere Quality in Altay
Component
Unit:mg/m³

Category/ Name of Roads		Monitoring Point	Monitoring Date	NO ₂	PM ₁₀	CO	Compliance with Standard Limit? (Y/N)
<i>Applicable Standard: Ambient Air Quality Standard (GB3095-1996)</i>		<i>Class I, daily average level</i>		0.08	0.05	4.00	
		<i>Class II, daily average level</i>		0.12	0.15	4.00	
New Road	Qiaodong Road	Kelanhe vacation village	July 3	0.005	0.03	0.666	Y
			July 4	0.008	0.03	0.735	Y
	South Tuanjie Road	Xinjiang Altay animal husbandry and veterinary vocational school	July 3	0.005	0.03	0.666	Y
			July 4	0.008	0.03	0.735	Y
Upgrading Road	North Jinshan Road	No.1 high school of Altay area	July 3	0.004	0.03 ₁	0.537	Y
			July 4	0.006	0.03 ₉	0.649	Y
	South Jinshan Road	No.3 high school of Altay	July 3	0.004	0.03 ₁	0.537	Y
			July 4	0.006	0.03 ₉	0.649	Y
	Gongyuan Road	Hump scenic spot (Class I)	July 3	0.006	0.03 ₇	0.734	Y
			July 4	0.010	0.04 ₃	0.810	Y
		Health school of Altay	July 3	0.005	0.03 ₃	0.666	Y
			July 4	0.008	0.04	0.735	Y

Category/ Name of Roads		Monitoring Point	Monitoring Date	NO ₂	PM ₁₀	CO	Compliance with
		Kindergarten			1		
			July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
	Tuanjie Road	Xiehe hospital	July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
	Wenhua Road	No.1 middle school of Altay	July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
Expansion Road	Hongdun Road	Science and education high school of Altay	July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
	Beier Road	Mosque	July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
	Middle of Beier Road	Graveyard of minority	July 3	0.003	0.029	0.486	Y
			July 4	0.005	0.036	0.522	Y
	Beier Road	No.3 middle school of Altay	July 3	0.005	0.033	0.666	Y
			July 4	0.008	0.041	0.735	Y
	Yuanyichang Road	Mosque	July 3	0.003	0.029	0.486	Y
			July 4	0.005	0.036	0.522	Y

C1.2 Assessment of Atmosphere Monitoring

26. According to the monitoring results listed in **Table 4.5** and the **Figure 4.1** to **4.3** as below, it is found that after taking appropriate environment management measures, daily average concentration monitored at atmosphere sensitive points can meet respectively Class-I and Class-II Standard of Ambient Air Quality Standard (GB3095—1996) , and no data exceeds the national standard limit.
27. Trend analysis. The PM₁₀ and NO₂ levels were not monitored in the 1st external environmental monitoring report of 2011. And the CO level was not monitored in the 1st and 2nd external environmental monitoring report of 2011 and 2012 respectively. In comparison with the results in the 2nd report of 2012, the PM₁₀ and NO₂ levels during the 3rd monitoring in 2013 are slightly lower. This possibly implies that the component has contributed positive environmental benefits after operation. The better

road conditions and transport environmental management have reduced emission of dust and other atmosphere pollutants.

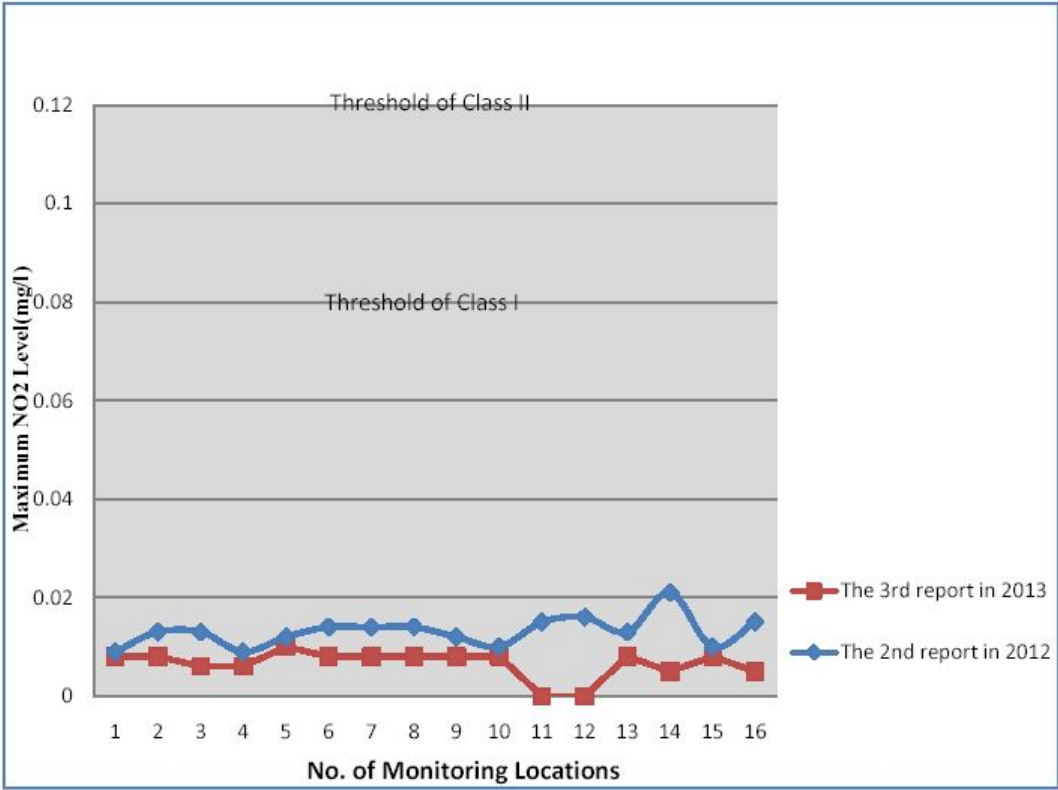


Figure 4. 1 Maximum NO₂ Level of All Monitoring Locations

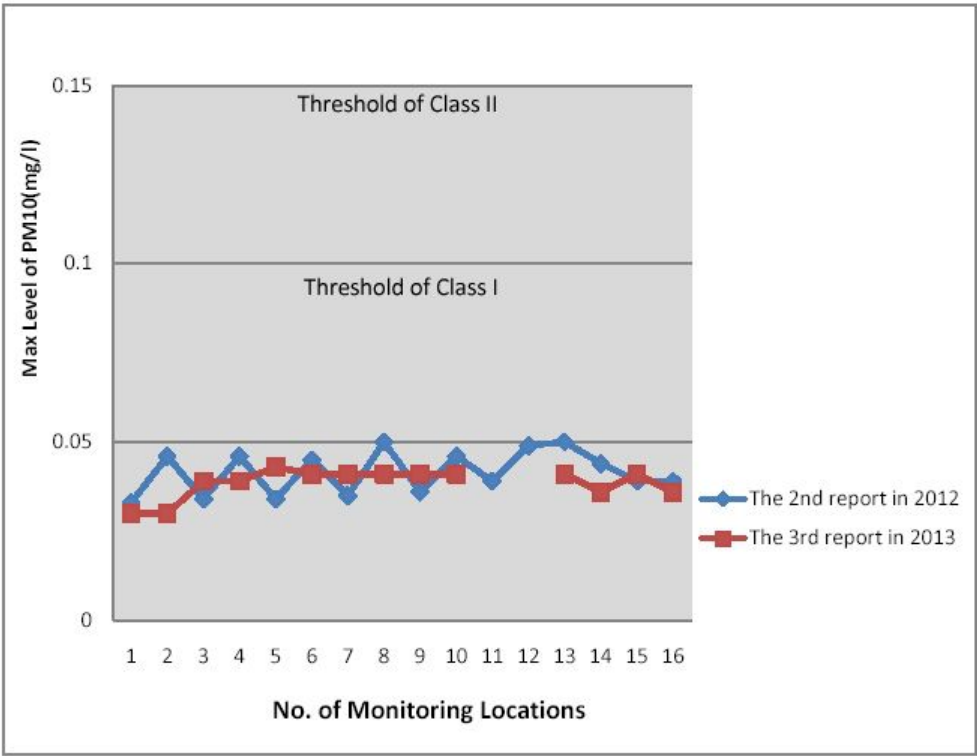


Figure 4. 2 Maximum PM₁₀ Level of All Monitoring Locations

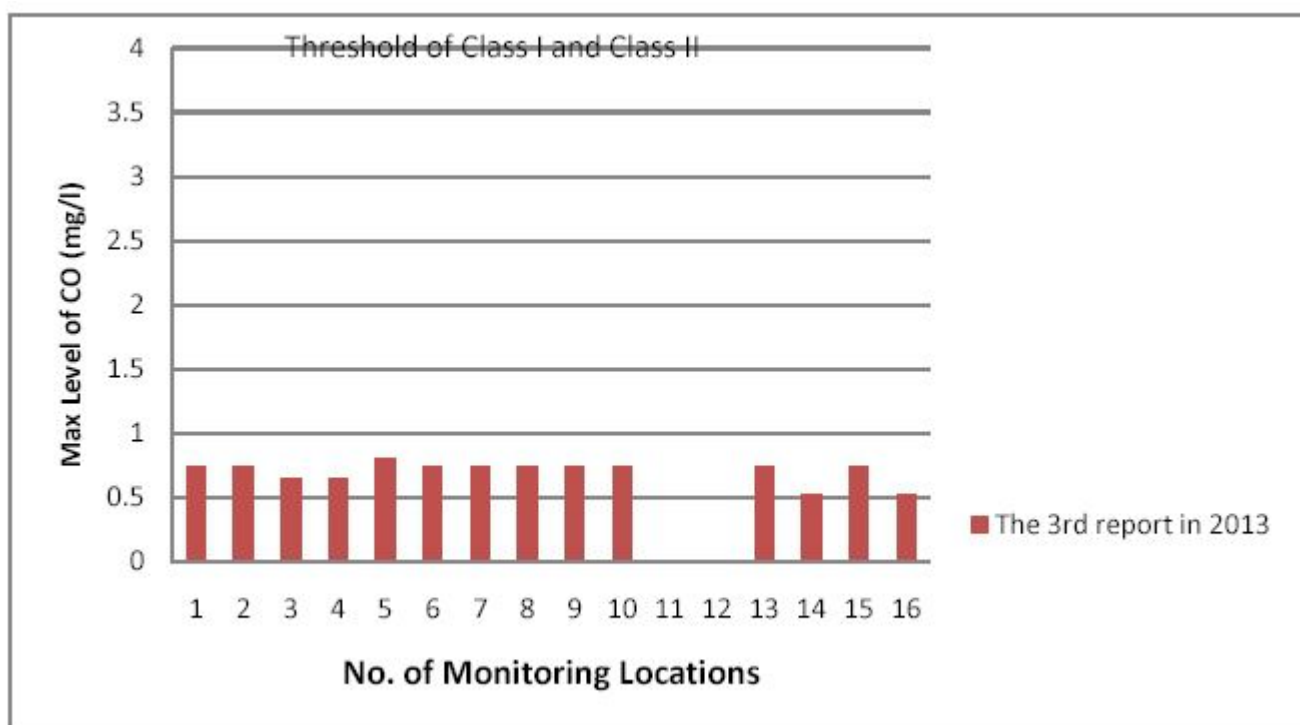


Figure 4. 3 Maximum CO Level of All Monitoring Locations

C2.1 Monitoring Results of Noise

28. Sensitive receivers of noise have been monitored in the day and night (no construction at night), and the results are shown in table 4.6.

Table 4. 6 Monitoring Results of Noise Monitoring, Altay Component

Unit: dB(A)

Ref No.	Monitoring Locations	Noise monitoring value				Environmental Quality Standard for Noise (GB3096—2008)		Compliance with Standard Limit? (Y/N)
		Monitoring Data (July 3)		Monitoring Data (July 4)				
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	
1#	Kelanhe vacation village (Class 1 area)	41.2	38.4	46.5	41.3	55	45	Y
2#	Xinjiang Altay animal husbandry and veterinary vocational school	46.1	47.9	56.6	48.7	60	50	Y
3#	No.1 high school of Altay	41.1	36.5	47.5	37.8	60	50	Y
4#	No.3 high school of Altay	59.9	48.3	52.4	44.6	60	50	Y
5#	Hump scenic spot (Class 1 area))	49.3	43.4	54.2	44.8	55	45	Y
6#	Health school of	38.6	35.9	58.8	46.7	60	50	Y

Ref · No.	Monitoring Locations	Noise monitoring value				<i>Environmental Quality Standard for Noise (GB3096—2008)</i>		Compliance with Standard Limit? (Y/N)
		Monitoring Data (July 3)		Monitoring Data (July 4)				
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	
	Altay							
7#	Kindergarten (Gongyuan Road)	48.8	43.7	43.9	41.2	60	50	Y
8#	Xiehe hospital	47.9	43.4	48.8	44.0	60	50	Y
9#	No.1 middle school of Altay	59.9	49.2	58.7	48.1	60	50	Y
10#	Science and education high school of Altay	41.3	38.4	46.6	42.5	60	50	Y
13#	Mosque(Beier Road)	35.9	37.4	43.6	39.6	60	50	Y
14#	Graveyard of minority (Class 1 area))	32.0	31.4	45.3	41.3	55	45	Y
15#	No.3 middle school of Altay	41.0	40.8	56.1	41.7	60	50	Y
16#	Mosque(Yuanyichang Road)	42.3	41.7	43.3	40.3	60	50	Y

C2.2 Assessment of Noise Monitoring

29. According to the monitoring data in **Table 4.6** and **Figure 4.4** and **4.5** shown as below , it is observed that the noise level of all sensitive points have respectively reached Class-I and Class-II standard of Environmental Quality Standard for Noise (GB3096—2008), which means as a result of adopting relevant environment management measures during operation process, the noise level is less than the prescribed limit and has limited effect on the surrounding sensitive receivers.

30. Trend analysis. In comparison with the results in the 2nd of 2012, the noise levels during the 3rd monitoring in 2013 have no significant tendency of change.

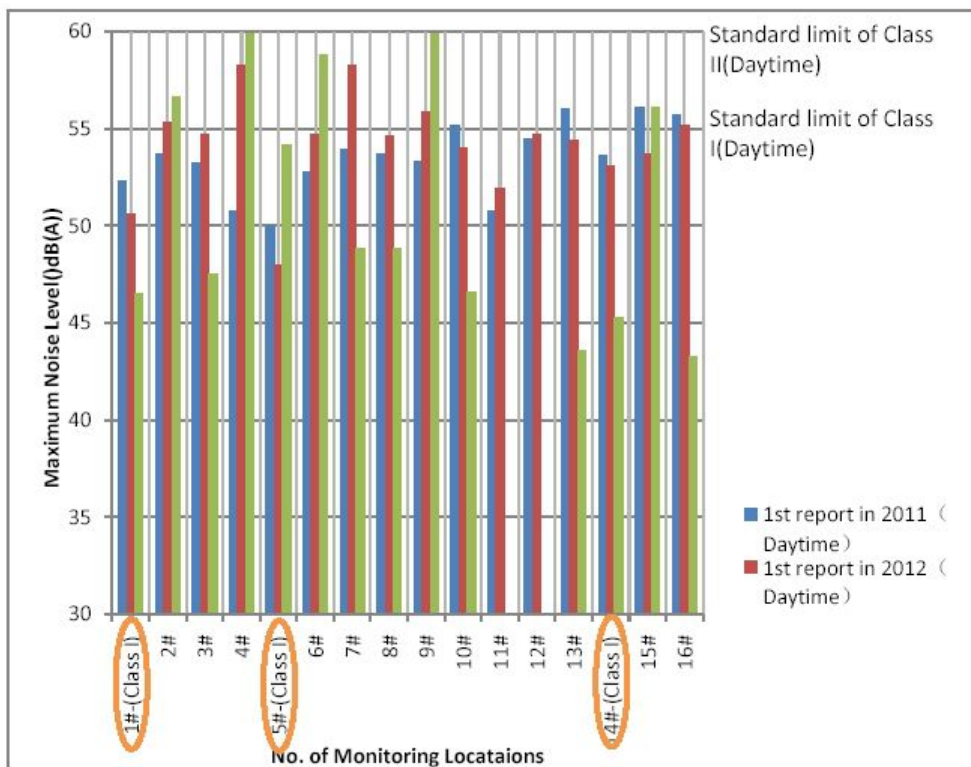


Figure 4. 4 Maximum Daytime Noise Levels of All Monitoring Locations In This Period And Previous Periods

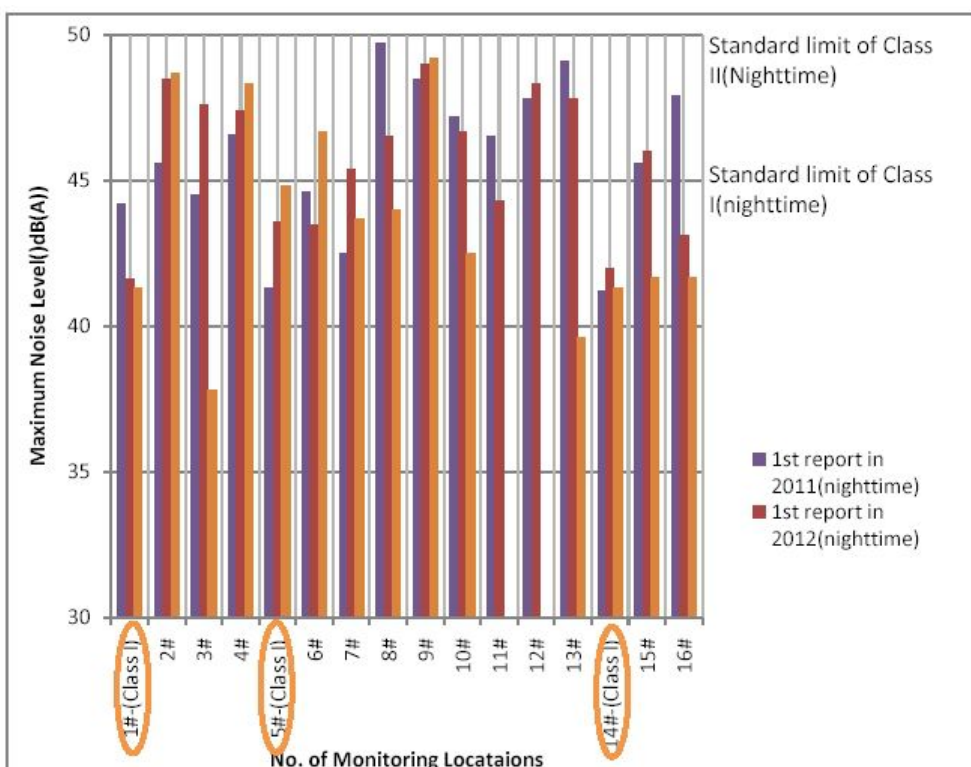


Figure 4. 5 Maximum Nighttime Noise Levels of All Monitoring Locations In This Period And Previous Periods

V. PUBLIC CONSULTATION AND GRIEVANCE REDRESS STATUS

31. The implementation status of the public consultation program, as proposed in the SEIA, is presented in the right column of the **Table 5.1**. In summary, the public consultation program has to date been implemented properly.

Table 5.1 Implementation Status And Future Plan of Public Consultation Plan

Organizer	Approach	Times	Subject	Attendees	Implementation Status	Planned activities in 2014
Construction Phase						
XJPMO, city PMOs, and IAs	Public conference consultation and site visits	At least once	Adjustment of mitigation measures, if necessary; construction impact; comments and suggestions	Residents adjacent to components, representatives of social sectors	Site offices were set up from beginning construction at every site. Multiple site visits have been conducted.	-
XJPMO, city PMOs, and IAs	Expert workshop or press	As needed, on the basis of public consultation	Comments and suggestions on mitigation measures, public opinions	Experts from various sectors, media	To be done if required.	-
Operation Phase						
XJPMO, City PMOs, IAs, O&M Departments	Public consultation and site visits	Once in the first 2 years	Effects of mitigation measures, impacts of operation, comments and suggestions	Residents adjacent to component sites, representatives of residents and representatives of social sectors	Multiple site visits have been conducted.	To be done at least once.
XJPMO, city PMOs, IAs, O&M departments	Expert workshop or press conference	As needed, on the basis of public consultation	Comments and suggestions on operational impact, public opinions	Experts from various sectors, media	Not yet due.	To be done if required.

32. At the beginning of project implementation, a grievance redress mechanism (GRM) was established. The environmental officers in Altay PMO and EMU also serve as the grievance focal points (GFPs). The GFPs have visited construction sites on a regular basis. During the site visits, the GFPs have interviewed the local residents living near the construction sites. The informal interviews focused on public complaints about community annoyances from construction activities, such as construction noise and dust, as well as public concerns about the environment and resettlement.
33. Contact information for the contractor and on-site project managers has been posted at each construction site. Public complaints and concerns can also be channeled through the hotline of the Altay City EPB (0906-12369, 0906-2135650).
34. According to information from the Altay EPB, EMU/IA/construction contractors, no complaint has been received through the formal grievance mechanisms (Altay EPB hotline, and posted hotlines of construction contractors on the construction sites).
35. The planned activities on public consultation during next reporting period is shown in the Table 5.1 above.

VI. IMPLEMENTATION OF INSTITUTIONAL STRENGTHENING AND TRAINING PROGRAM

36. By far, ADB officers and consultants provided training on environmental management for the Altay PMO and the IA.
- Between 3 and 5 November 2009, the ADB Beijing office provided professional trainings covering environmental protection to enable project management staff of each level to further understand and become familiar with ADB environmental safeguard policies and implementing procedures.
 - In October 2010, the XPMO organized all sub-project staff to attend the Seminar on Best Practices on Asia-Pacific Urban Sustainable Development co-hosted by ADB East Asia Bureau and Architecture and Urban Planning College of Shanghai Tongji University. The seminar lasted for two and a half days, with ideas exchanged on wastewater and waste sludge treatment, energy efficiency, cases on urban planning and urban management, as well as paying a field visit to Shanghai Zhujiajiao town as best practice of planning and another visit to ADB loan Shanghai Environmental Project Phase II Urban Wastewater management. Participants also visited the Bailong Port waste sludge treatment subproject.
 - In January of 2011, the XPMO organized all LPMOs to have trainings in Urumqi on environmental monitoring in line with ADB policies. Besides the training mentioned above, the loan implementation consultants also provided a variety of training covering project environmental management and EMP implementation.
 - In November 12 to 13 of 2013, the XPMO organized all sub-project staff to attend the Seminar on *Challenges and Opportunities on Chinese New City And New District* co-hosted by ADB East Asia Bureau and Architecture and Urban Planning College of Shanghai Tongji University in Shanghai city. The seminar covered urban planning, infrastructure improvement, climate change adaption, energy efficiency, city expansion and upgrading, urban transport, etc. The participants visited the Jiading New City as the best case for the Chinese New City And New District in 2013.
 - On-job trainings are also provided, such as meetings, daily technical guidance and knowledge transfer.
37. External training progress.
- In April of 2012, the Xinjiang PMO organized the first domestic training for all subproject units in Urumqi, training content including project management, the traffic pavement design and road safety audit, contract management, contract changes, reimbursement and payment, audit, environmental monitoring, resettlement monitoring, project performance monitoring system (PPMS) and performance management, ADB project mid-term adjustments, and the ADB project experience exchange. The first domestic external training report submitted to ADB in May 2012.

- In May of 2012, the Xinjiang PMO organized the first domestic training for all subproject units in Anhui Province. The training content included discussions (including project management, procurement and bidding, project reimbursement and payment, resettlement, mid-term adjustments, completion and acceptance, and assets transfer) and an exchange of experiences for the ADB project with the Hefei ADB PMO; a visit to the Hefei ADB Project, and also discussed with related officers. The subproject construction content includes wastewater interception and treatment (Wangtang WWTP and landfill cover project of Qingxi Road), the river comprehensive management (in Silihe) and Chaohu Environmental Improvement Project; the training staff also visited the Hefei newly renovated urban construction now flourishing and Huangshan Scenic Area.

38. The proposed institutional strengthening and capacity building program in the EMP and the status of implementation of the proposed capacity building activities are presented in the **Table 6.1**. In summary, the institutional strengthening and capacity building programs has to date been implemented well.

Table 6. 1 Implementation Status of Institutional Strengthening and Training

Strengthening Activities	Agencies	Strengthening Plan	Timing	Implementation Status	Planned activities in 2014
Capacity Building	XJPMO, city PMOs, IAs City	Institutional organization, development of responsibilities for each position	During project preparation and implementation	Fulfilled. Altay PMO and IAs appointed personnel prior to start of project implementation.	-
Monitoring	PMOs, IAs Contractors	Procurement of related monitoring instruments and equipment	During project preparation and implementation	The contractors and CSCs are responsible for internal environmental monitoring. Altay Municipal EMS was recruited and contracted for external environmental monitoring support.	The whole component will be under operation. Altay Construction Bureau is responsible for the overall environmental management. Altay Municipal Maintenance Department will monitor the environmental status of the road facilities. Altay Landscaping Management Department will monitor the environmental status of the street landscaping sub-component. Altay Municipal Environmental

					Sanitation Department will monitor the environmental status of the sanitation facilities. The Altay Municipal EMS was recruited and contracted for external environmental monitoring support and monitoring for project completion inspection and acceptance.
Training	Attendees	Contents	Times	Implementation Status and Future Plan	Planned activities in 2014
EMP implementation and adjustment, settlement of disputes	City PMOs, IAs, contractors	Development and adjustment of the EMP, emergency response, environmental laws and regulations, environmental management	1	Two training sessions were organized by the Xinjiang PMO in January of 2011 and April of 2012.	-
Environmental processes and environmentally responsible procurement	City PMOs, IAs, contractors	Engineering technologies, controls, equipment selection and procurement, solid waste management, road and traffic management	2	Two training sessions were organized by the Xinjiang PMO in January of 2011 and April of 2012.	-
Environmental monitoring and emergency response plan	City PMOs, IAs, contractors	Monitoring methods, data collection and processing, reporting systems	1	Environmental monitoring and reporting workshop was delivered to the intended target groups during the inception stage of loan implementation consultancy.	-
Environmental policies and plans	City PMOs, IAs, contractors	Environmental laws and regulations, environmental management, emergency response	1	Two training sessions were organized by the Xinjiang PMO in January of 2011 and April of 2012.	-
Solid waste management	City PMOs, IAs, and contractors	SWM laws and regulations, practice and	1	The training plan was developed. A domestic training in Anhui was conducted.	To be done if required.

	ors	experience			
Eco-city development	Turpan and Altay PMOs	Eco-city plan and awareness education	1	Relevant training sessions were organized by the Xinjiang PMO in Oct. of 2010 and Nov. of 2013.	-
Environmental sanitation awareness and participation activities	City PMOs	Rising awareness level of city leaders, bureau leaders, public including children	1	The training plan was developed.	To be done.
SWM curriculum for environmental education	City PMOs, EPBs, and education bureaus	Natural science and social science, current status of SWM (conceptual awareness), technical studies on solid waste issues, and community participation	1	Not yet.	To be done.
Traffic and safety management	City PMOs, IAs, and contractors	Study of traffic and safety management	2	One training session was organized by the Xinjiang PMO in Apr. of 2012.	To be done.

EMP = environmental management plan, EPB = Environmental Protection Bureau, IA = implementing agency, PMO = project management office, SWM = solid waste management, XJPMO = Xinjiang Uygur Autonomous Region project management office.

VII. STATUS OF COMPLIANCE WITH LOAN COVENANTS RELEVANT ENVIRONMENT

39. All environmental safeguard provisions and covenants have been complied with or being complied with. A summary is provided in **Table 7.1**.

Table 7. 1 Compliance with Environment Safeguard Loan Covenants

Loan Covenant	Reference	Status of Compliance
Loan Agreement (Signed between ADB and PRC on 26 AUGUST 2009)		
ARTICLE IV- Particular Covenants		
<i>The Borrower shall cause XUARG to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, and urban transport practices.</i>	Section 4.01(a)	Being complied with.
Project Agreement (Signed between ADB and PRC on 26 AUGUST 2009)		
ARTICLE II- Particular Covenants		
<i>XUARG shall carry out the Project with due diligence and efficiency, and in conformity with sound administrative, financial, engineering, environmental, and urban transport practices.</i>	Section 2.01(b)	Being complied with.
<i>Each IA shall at all times conduct its business in accordance with sound administrative, financial, environmental, and urban transport and environmental improvement practices, and under the supervision of competent and experienced management and personnel.</i>	Section 2.11(a)	Being complied with.
<i>Each IA shall at all times operate and maintain its plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound administrative, financial, engineering, environmental, maintenance and operational practices, and urban transport practices.</i>	Section 2.11(b)	To be complied with during operational stage.
SCHEDULE		
Execution of Project; Financial Matters		
Public Awareness Program		
<i>Each IA shall conduct of public awareness and education programs, pre-, during, and post-project implementation, targeting at all stakeholders in the Project areas in the languages of the local ethnic minority groups, on health, hygiene, managing solid waste disposal and wastewater, environmental improvement, and the developmental objectives of the Project.</i>	13	Partly complied with. To be complied with.
Environment		
<i>Each IA shall construct, operate, maintain, and monitor the Project facilities in strict conformity with (a) all applicable national and provincial environmental laws and regulations, ADB's Environment Policy (2002), and other national, Xinjiang, and local laws and regulations and standards on environmental protection, health, labor, and occupational safety, and (b) all environmental mitigation and monitoring measures detailed in the design and construction contracts, the operational guidelines, and the approved EIAs, SEIA, and EMP for the Project.</i>	18	Being complied with.

Loan Covenant	Reference	Status of Compliance
<i>Each IA shall ensure that an adequate number of full-time personnel and sufficient resources be provided to monitor the implementation of the environmental monitoring program, under the guidance of XEPB, Altay, Changji, Hami, Kuitun, and Turpan environmental protection bureaus or other environmental monitoring centers.</i>	19	Being complied with.
<i>Each IA shall ensure that XEPB and PMO review any changes to the project design that may have a potential for causing negative environmental impacts, so that environmental monitoring and mitigation measures may be adjusted accordingly in consultation with ADB.</i>	20	To be complied with if applicable.
<i>Each IA shall build, where applicable, the associated solid waste, wastewater treatment, and underground facilities in parallel with the proposed road components and complete the connections and maintain such facilities in good condition.</i>	21	Being complied with.
<i>Each IA shall take necessary actions to minimize the impact of water supply, wastewater collection, and other utility services during the construction of the roads and associated facilities constructed under the Project.</i>	22	Being complied with.
<i>Each IA shall submit regular monitoring reports to the PMO, who shall prepare and submit to ADB semi-annual environmental reports in a format acceptable to ADB, until loan closure.</i>	23	Being complied with. The 1 st external environmental monitoring report was disclosed on the ADB's website in June of 2012. the second report for the period up to the end 2012 was disclosed in March 2013 on ADB's website .
Other clause in the <u>SEIA</u> for Xinjiang Urban Transport and Environmental Improvement Project, September 2008		
<i>Altay employs the best design institute in the PRC for the cable-stayed bridge design, as this requires complex analysis in many design items.</i>	Para.171 (vi)	Complied with

Compliance With Domestic Legal Requirements

40. **Table 7.2** provides a list of the applicable environmental laws and regulations of the PRC with which design, construction, and operation of all project facilities will comply. Some other relevant documents have been reviewed. They cover information and/or requirements with respect to environmental impacts, mitigation measures and monitoring and should also be complied with during project implementation and operation.

Table 7. 2 Relevant Environmental Laws, Standards and Regulations

Subject	Environmental Laws, Standards and Regulations
General Environmental Protection	<ul style="list-style-type: none"> • Environmental Protection Law of the PRC (26 Dec 1989) • Environmental Impact Assessment Law of PRC (1 Sep 2003) • Environmental Protection Management Regulations for Construction Projects (29 Nov 1998) • Notice to Strengthen the Environmental Impact Assessment and Management of Construction Projects Financed by Loan from International Financial Organizations (21 Jun 1993)
Xinjiang Local Environmental Protection	<ul style="list-style-type: none"> • Xinjiang Uygur Autonomous Region Environmental Protection Regulation, revised on 27 May 2005 • Xinjiang Uygur Autonomous Region Water Environment Function Zoning, December 2003 • Xinjiang Uygur Autonomous Region Ecological Function Zoning, September 2003
Water Resources	<ul style="list-style-type: none"> • Water Law of the PRC (1 Oct 2002) • Environmental Quality Standards for Surface Water (GB3838-2002)
Forestry Resources	<ul style="list-style-type: none"> • Forests Law of the PRC (revised on 29 Apr 1998)
Protection of Grasslands	<ul style="list-style-type: none"> • Grassland Law of the PRC (1 Mar 2003)
Protection of Wildlife	<ul style="list-style-type: none"> • Wildlife Protection Law of the PRC (1 Mar 1989)
General Land Use and Management	<ul style="list-style-type: none"> • Land Management Law of the PRC (1 Jan 1999)
Culture Heritage Protection	<ul style="list-style-type: none"> • Culture Heritage Protection Law of the PRC, 28 October 2002 • Culture Heritage Protection Regulation of the PRC, 1 July 2003
Biological protection	<ul style="list-style-type: none"> • Notice to Circulate the Guidelines for National Biological Protection, 26 November 2000
Soil Erosion Control	<ul style="list-style-type: none"> • Conservation of Water and Soil Law of the PRC (29 Jun 1991)
Flood Prevention	<ul style="list-style-type: none"> • Flood Control Law of the PRC, 1 January 1998
Solid Waste Management	<ul style="list-style-type: none"> • Solid Waste Environmental Pollution Prevention and Control Law of the PRC (1 Apr 2005)
General Water Pollution	<ul style="list-style-type: none"> • Water Pollution Prevention and Control Law of the PRC (15 May 1996) • Integrated Wastewater Discharge Standard (GB8978-1996)
General Air Pollution	<ul style="list-style-type: none"> • Air Pollution Prevention and Control Law of the PRC (1 Sep 2000) • Ambient Air Quality Standard (GB3095-1996) • Integrated Emission Standard of Air Pollutants (GB16297-1996)
Noise in Urban Areas	<ul style="list-style-type: none"> • Ambient Noise Pollution Control Law of the PRC, 1 March 1997 • Environmental quality standard for noise(GB3096—2008) • Emission standard of environment noise for boundary of construction site (GB 12523—2011)
Road Management	<ul style="list-style-type: none"> • Road Traffic and Safety Law of the PRC, 28 October 2003 • City Roads Management Regulation of the PRC, 4 June 1996

41. It is noted through documentation review as well as site visits that the implementation of the component had been compliant with relevant environmental laws, regulations and standards, and the environmental protection measures or facilities had been designed and constructed concurrently with the main construction works.

VIII. KEY ENVIRONMENTAL ISSUES

A. Key Issues Identified

42. Based on the results of above mentioned monitoring and inspection, there is no any relevant significant environmental issues raised during the reporting period. No non-compliance notices have been issued on all civil works contractors, either.

IX. CONCLUSIONS AND RECOMMENDATIONS

A. Overall Progress of Implementation of Environmental Management Measures

43. Based on the results of the third external environment monitoring, it is found that the contractors have basically undertaken relevant environment management measures specified in the EIA and the SEIA, and shown enough concerns on possible negative environmental impacts due to the component implementation. According to the external environment monitoring results, corresponding measures have been undertaken during construction and operation to minimize the adverse impact on environment. The conclusions of the external environment monitoring are summarized as follows:
- After adopting appropriate environment management measures at construction sites and environmental sensitive receivers, there is little impact on external environment quality and environmental sensitive points.
 - Corresponding environment management measures have been taken during construction and operation to ensure that air and noise at sensitive receivers are less than prescribed limit and has little effect on the surrounding air and noise environment.

B. Problems Identified

44. In 2013, no issues or problems associated with environmental aspects have been induced by the component construction and operation. No corrective actions were recommended during this reporting period.

C. Action Plan of Environmental Monitoring &Evaluation (M&E) in 2014

45. The action plan considered for continuous satisfactory environmental compliance is given in **Table 9.1**.

Table 9. 1 Action Plan Considered For Continuous Satisfactory Environmental Compliance

Action	To be taken by	Time frame
Implementing the mitigation measures defined in the EMP	IAs	Continuous , monthly report
Internal monitoring for EMP implementation	Contractors/CSCs/IAs	Continuous , monthly report
External monitoring for EMP implementation	Altay Municipal EMS	Continuous , semi-annual report
Institutional strengthening and capacity building	Altay PMO, IAs, Loan implementation	Done partly and to be continued as per progress of

	environmental specialist, Contractors, CSCs	the projects
Public consultation during operation	Altay PMO, IAs, Loan implementation environmental specialist, Contractors, CSCs	Done and to be continued
Follow up action for environmental clearances/ consent	Contractors	At earliest if required
Environmental acceptance and audit in accordance with the Management Guideline on Project Completion Environmental Audit (2001)	A qualified institute	After the Altay component is finished in 2014

X. APPENDICES

I. Monitoring Evaluation Standard

II. Site photos

Appendix I Monitoring Evaluation Standard

Environmental Factor	Evaluation Standard		Monitoring Item	Standard Value	Unit
Atmosphere	<i>Ambient Air Quality Standard</i> (GB3095-1996)	Class I, daily average level	NO₂	0.08	mg/m ³
			PM ₁₀	0.05	
		Class II, daily average level	NO₂	0.12	
			PM ₁₀	0.15	
		Class I and Class II, daily average level	CO	4	
Noise	<i>Environmental Quality Standard for Noise</i> (GB3096-2008)	Class-1	Daytime	55	dB(A)
			Nighttime	45	
		Class-2	Daytime	60	
			Nighttime	50	

Appendix II Site Photos



Photo A2.1 Binghe Rd.-1



Photo A2.2 Binghe Rd.-2



Photo A2.3 Hongdun Bridge-1



Photo A2.4 Hongdun Bridge-2



Photo A2-5 Hongdun Bridge-3



Photo A2-6 Hongdun Bridge-4



Photo A2-7 Lanjing Street-1



Photo A2-8 Lanjing Street-2



Photo A2-9 Lanjing Street-3



Photo A2-10 Wenhua Rd.-1



Photo A2-11 Wenhua Rd.-2

**Xinjiang Urban Transport and Environmental
Improvement Project
ADB Loan: 2526-PRC**

**External Environment
Monitoring Report
-Changji City
(2013)**

**Changji Environmental Monitoring Station
November 2013**

1 ASSIGNMENT AND MONITORING PURPOSE

According to the environment management plan and relevant requirements specified in the SEIA for Xinjiang Urban Transport and Environmental Improvement Project (the Project) under Asian Development Bank (ADB) loan, the routine monitoring is carried out regarding to the environmental impact during the project construction and commissioning. In line with: (i) the target to mitigate the negative impact of the sub-project; (ii) the relevant specifications and standards of China as well as the safeguard policies of ADB; and (iii) the environmental impact monitoring and data analysis during construction and commissioning, it is proposed to evaluate: (i) if the effect of the environment protection measures meets the requirements of the relevant laws and regulations; (ii) the tendency of environmental impact; (iii) the overall effect of the project environment management plan (EMP). For the commitment to the external environment monitoring of Xinjiang Urban Transport and Environmental Improvement Project, we have carried out the field survey on the project site, and completed the 1st External Environment Monitoring Report of Changji City .

2 PROJECT INTRODUCTIONS

2.1 Background

Changji city is located in the centre of Eurasian Continent; it has always been transportation strategic artery of Northern Xinjiang. There are Eurasia Continental Bridge, 312 National Highway and the Urumqi-Kytun Highway throughout the city. Nowadays, it is the satellite city of Urumqi. A highway with distance of 35 kilometers runs through between the two cities. It is only 18 km away from the Urumqi International Airport. Changji is the first launched key city of the western region development strategy. It has been jointly identified as the “Best investment environment city”, “Best living environment city”, “Best transportation and communication conditions city” and “High return rate of investment city” by NDRC and other departments. Since the reform and opening up, especially after the implementation of western development strategy, the urban economy has shown a rapid and healthy development tendency. The urban GDP has kept double-digit growing for six years. Changji has gained 10 national honors and titles of “State-level advanced science and technology city”, “State-level excellent city in urban environment comprehensive improvement”, “State-level advanced hygiene city” and “National model city of mutual support between the civilian and the arm forces”, etc.

At present, Changji urban road system is connected by Uy Road (urban section of 312 National Highway), Tacheng Road, Turpan Road, Century Avenue, Beijing Road, and Zhongshan Road which form the transportation skeleton of "Three vertical and three horizontal". Due to the historical reasons, Changji urban road grade is low and the sidewalk, non-motorized road and other city road function are imperfect. Therefore the traffic capacity of roads is much affected. With the development of Changji City, external linkage will be greatly strengthened; the current road conditions will be

unable to meet the needs of external transportation linkage. So it is very necessary to build new city road to adapt the situation.

2.2 Project Scale and Contents

The sub-project includes 9 roads , of which 7 new roads with total length of 13.87 km (Shihezi Rd, West Ningbian Rd, West Jiankang Rd, West Jianguo Rd, West outer ring Rd, North outer ring Rd, West south-park Rd) and 2 upgrading roads with total length of 9.85 km(Qingnian Rd, Tacheng Rd) .The corresponding road ancillary facilities are also included.

2.3 Institutional Arrangement

The organizational chart of the sub-project is shown as follows:

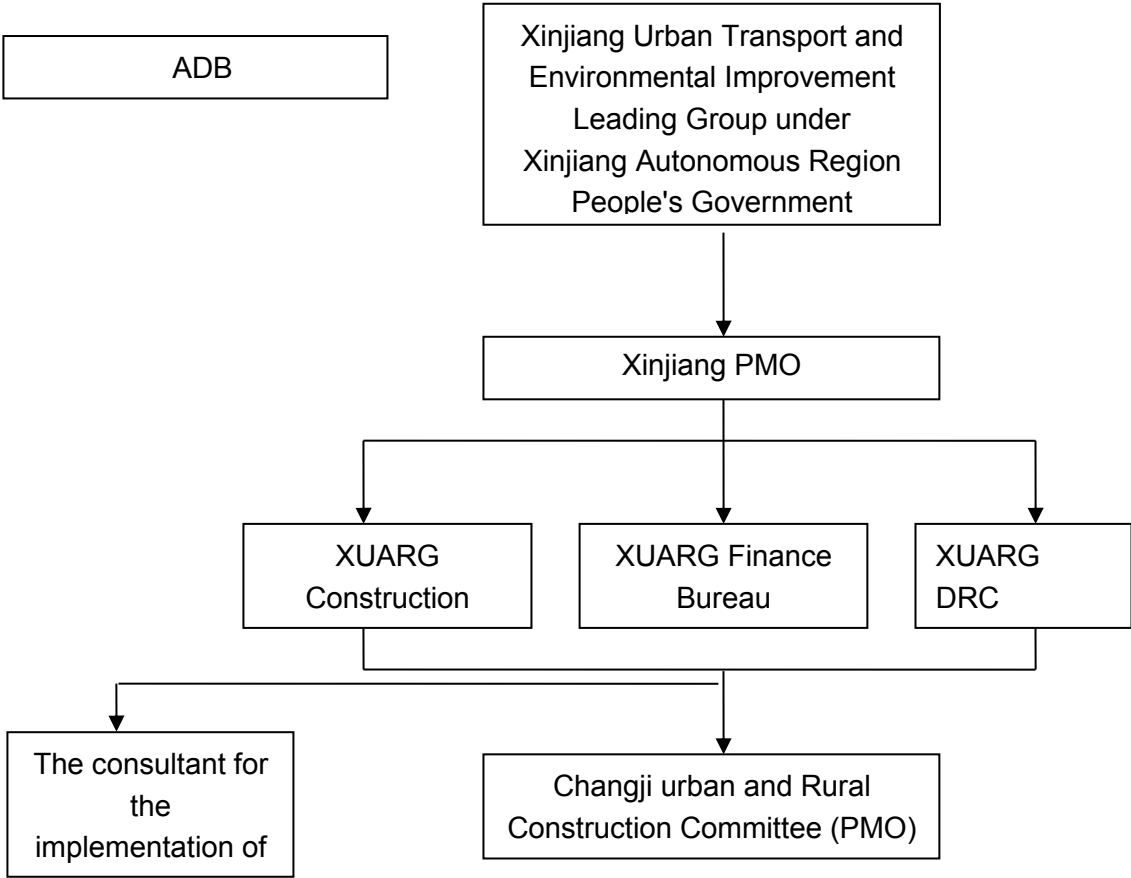


Figure 2-1 Organizational chart of ADB loan project

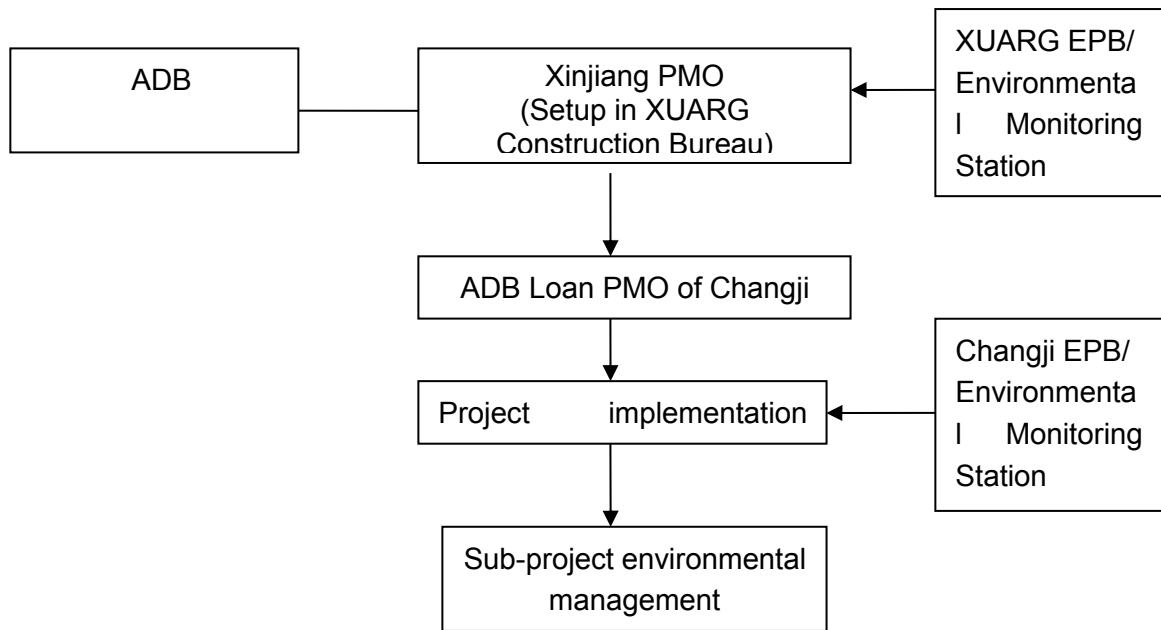


Figure 2-2 Organizational chart of Environmental management

2.4 Project Progress

Table 2-1 Current Work-schedule (By November 2013)

No.	Name of Rd.	Start work	Works completed by November ,2012	Current stages	Completed investment (RMB, TEN THOUSAND)	Schedule in 2012
1	West and North outer ring Rd.	April,2011	Completed	Usage period	4400	Completion
2	West south-park Rd	April,2011	Completed	Usage period	2600	Completion
3	Qingnian Rd	April,2011	Basically completed	construction period	3300	Completion
4	Shihezi Rd	April,2011	Completed	Usage period	1700	Completion

5	Tacheng Rd	April,2012	Basically completed	construction period	2200	Completion
6	Jiankang Rd	April,2012	Completed	Usage period	500	Completion
7	Ningbian Rd	April,2012	Basically completed	construction period	500	Completion

3. ENVIRONMENT MANAGEMENT MEASURES

3.1 Purpose of Environment Management

Environment management is carried out for all the components to prevent any environmental pollution during construction, minimize the negative environmental impact of the sub-project during the implementation, and eventually the objective of improving the urban environment of Changji City will be achieved.

3.2 Environment Management Measures and Implementation

3.2.1 Environment management measures during construction period

Table 3-1 Environment management measures during construction period

Environment Problems	Management Arrangement
Dust / Air Pollution	1) During the construction period, watering the road not less than 2 times; resident area should be increase the watering frequency (mainly aimed at tunnel construction). Watering to compacted materials during roadbeds filling, after compacting, should be regularly watered to prevent dusting.
	2) Powdery materials such as cement, lime should be piled up with sheeting covering. The main road for transport sand/stone and construction site should be equipped with sprinkler, watering regularly, in order to reduce the handling, transport sand stone produced by dust.
	3) The road beds are layered, compacted and sprayed with water, as well as decrease dust. For the pipeline laying, section construction is used and the roads shall be restored soon after completion to avoid blocking or dust.
Construction Site	1) Taking adequate measures at the construction site, such as providing dustbins and hygiene facilities, cleaning toilets fecal water regularly.
	2) Garbage collection in a fixed place, and regular cleaning.
Noise	1) Strictly implement standards of industrial enterprise noise to prevent works noise infringement. The works who closed to high noise source should be protected and limited the working time.
	2) The strong noise construction will be prohibited when construction site around residents, fixed mechanical away from the residential areas as well.
	3) Strengthening the maintenance of machinery and vehicles to enable them to maintain low noise.
Ecological Environment	1) To minimize the fill and excavation earthwork.
	2) Strengthening the environmental protection education to

	applicators on jobsite, no discharge of waste and destruction of vegetation.
Soil Erosion	1) To strengthen the embankment protection, to build road drainage works.
	2) Site formation, restoration of vegetation after taking and discarding soil, sand and stone material.
Accident Rise	1) In order to guarantee the construction safety, to install lighting equipment and safety signal on the road in the construction period temporality.
	2) Adopting effective safety and warning measures to reduce the accident.
Traffic & Transportation	1) Use local construction material as possible to avoid long-distance transport the construction materials, especially cubic meter of earth and stone.
	2) Consultation with traffic and public security departments when road is jam, to take adequate measures to guide traffic.
	3) Considering prepare materials at less traffic jams seasonal.

3.2.2 Environment management during operation phase

Table 3-2 Environment management measures during operation phase

Environment problems	Measures undertaken
Transportation management	1) It is need to have the traffic department issued 3 permits--navicert, driving license and guard certificate. According to the provisions of the Ministry of communications for all transportation of dangerous goods vehicles will have a unified logo.
	2) Public security and transportation management department, the fire department designated specialized transport routes for transportation of dangerous goods. Dangerous goods vehicles can only park in the designated parking.
Vehicle management	1) Strengthening traffic management, road vehicles must meet the requirements of the national emission standards, and yearly inspection and regular inspection.
	2) Strengthening the related regulations of Education about the vehicle air pollution, noise.
Road maintenance	1) Strengthening the maintenance of the road to ensure the normal running of the vehicle, reducing vehicle exhaust and noise emissions to avoid traffic jam.
	2) Reasonable arrangement of pavement repair time to avoid the peak period.
Noise	According to the monitoring results, exceed the standard place in noise to set up sound barrier or line traffic control.
Drainage system maintenance	Regular drainage dredging to ensure the normal operation of drainage system.
Environment supervision	1) municipal sanitation group is charge in arrange specially-assigned person to clean road, timely cleaning road obstructions to ensure traffic safety,

	2) Regular maintenance, check the road signs, warning signs and street lighting to ensure traffic is unblocked.
	3) landscape department to guarantee the road on both sides of the green belt, buffer zone and a sidewalk trees will grow well, modeling of plants to maintain a beautiful shape.

4. ENVIRONMENT PROTECTION TARGET

Based on the EIA of Changji sub-project under ADB loan Xinjiang Urban Transport and Environment Improvement Project, the environmental sensitive targets are identified. Currently there are 5 roads at construction phase. Three of them are involved in environmental sensitive points. So we have conducted field survey and environmental monitoring for these environmental sensitive points on the three roads under construction (Qingnian Rd, West south-park Rd, Shihezi Rd) in the sub-project. The main environmental protection targets are as **table 4-1**:

Table 4-1 List of environmental protection targets

No.	Environmental Factors	Environment Protection Targets	Applied Standard
1	Atmosphere environment	Taoyuan subdistrict (Qingnian Rd.)	Class-II Of Environmental Air Quality Standard (GB3095—1996)
		Changji Maternal and Child Health Hospital (South-park Rd.)	
		Kaidi subdistrict (Shihezi Rd.)	
2	Acoustic environment	Taoyuan subdistrict (Qingnian Rd.)	Class-II of Environmental quality standard for noise (GB3096—2008)
		Changji Maternal and Child Health Hospital (South-park Rd.)	
		Kaidi subdistrict (Shihezi Rd.)	

5 WORK SCOPE OF THE ENVIRONMENT MONITORING

Through field investigation, all the roads under construction are not involved in nature reserve or scenic area. But noise and atmospheric environment sensitive points at both sides of the roads require careful considerations .

At this stage, only monitoring environment during construction period has been conducted.

5.1 Environmental Monitoring Scope

1. The location and timing of monitoring are determined according to the sub-project's actual progress, construction activities and routes.
2. The key monitoring locations are selected near sensitive road sections, such as residential areas, schools, hospitals and etc.

5.2 Atmosphere Monitoring

Monitoring Items: TSP

Monitoring locations: atmosphere sensitive points around Qingnian Rd, South-park Rd, Shihezi Rd

Monitoring time: TSP sampling duration no less than 12hours per day, once a day, consecutively for 7 days from 09/10/2013-15/10/2013.

5.3 Noise Monitoring

Monitoring Items: Equivalent sound a level (Leq)

Monitoring location: noise sensitive points around Qingnian Rd, South-park Rd, Shihezi Rd

Monitoring time: once in the daytime and once at night on Oct 09, 2013.

6 MONITORING METHOD AND EVALUATION STANDARD

According to the relevant national regulations, environmental function classification of Changji City and relevant contents in the EIA reports for the sub-project, the monitoring method and evaluation standards are determined as follows (see Table 6-1).

Table 6-1 List of Monitoring Methods and Evaluation Standards

Environmenta l Factors	Sampling and Analyzing Method	Evaluation Standards
Atmosphere	Ambient Air--Determination of total suspended particulates--Gravimetric method (GB / T 15432-1995)	Class-II of Environmental Air Quality Standards (GB3095-1996)
Noise	Environmental quality standard for noise (GB3096-2008)	Class-II of Environmental quality standard for noise (GB3096—2008)

7 ENVIRONMENTAL MONITORING RESULT AND EVALUATION

7.1 Atmospheric Environment monitoring results

Table 7-1 Monitoring Data of Atmosphere pollutants

Monitoring location	Monitoring Date	TSP
Taoyuan district, Qingnian Rd	Oct 09, 2013	0.178
	Oct 10, 2013	0.174
	Oct 11, 2013	0.188
	Oct 12, 2013	0.178
	Oct 13, 2013	0.169
	Oct 14, 2013	0.189
	Oct 15, 2013	0.175
Kaidi garden district, Shihezi Rd	Oct 09, 2013	0.177
	Oct 10, 2013	0.169
	Oct 11, 2013	0.189
	Oct 12, 2013	0.175
	Oct 13, 2013	0.177
	Oct 14, 2013	0.192
	Oct 15, 2013	0.195
Changji Maternal and Child Health Hospital, South-park Rd	Oct 09, 2013	0.163
	Oct 10, 2013	0.165
	Oct 11, 2013	0.202
	Oct 12, 2013	0.163
	Oct 13, 2013	0.178
	Oct 14, 2013	0.174
	Oct 15, 2013	0.188
Class-2 Environmental Air Quality Standards (GB3095-1996)		0.30

According to the monitoring data in the Table 5-2, it is observed that the TSP level of all sensitive points at Qingnian Rd, Shihezi Rd, South-park RD

can meet Class-II Standard of Environment Air Quality Standard (GB3095—1996).

7.2 Noise Environment monitoring results

All sensitivity points had been monitored on Qingnian Rd, Shihezi Rd, South-park Rd at daytime and nighttime, as table following:

Table 7-2 Noise Monitoring Data Unit: dB (A)

Monitoring location	Name of sensitive point	Leq(dB)	
		daytime	nighttime
△1#	Taoyuan district, Qingnian Rd	54.8	44.8
△2#	Kaidi garden district, Shihezi Rd	53.3	43.9
△3#	Changji Maternal and Child Health Hospital, South-park RD	54.5	44.3
Class-II of Environmental quality standard for noise (GB3096—2008)		60	50

According to the monitoring data in the Table 5-3, it is observed that the noise level of all sensitive points near Qingnian Rd, Shihezi Rd, South-park Rd can meet the Class-2 standard (Daytime 50dB and Nighttime 60dB) of Environmental quality standard for noise (GB3096—2008).

8. MONITORING FINDINGS AND SUGGESTIONS

8.1 Key Findings

Based on the site survey and monitoring for the first external environment monitoring report, it is found that on the five roads under construction have undertaken the relevant environmental management measures specified in the project EIA reports, and shown enough concern on the possible negative environmental impact due to the project implementation. According to the monitoring results, the mitigation measures undertaken during the project operation have minimized the adverse environmental impact and all environmental protection targets monitoring data can satisfy relevant national standards.

8.2 suggestions

1. Civilized construction, strengthening supervision and management, minimizing adverse impact on the surrounding environment.
2. The contractor should continue to strictly implement the project environmental management plans and measures, reduce construction waste water, dust, mechanical noise and other adverse environmental impacts.
3. Strengthening environment awareness of contractors, increasing awareness of environmental protection to ensure that the project construction in an environment-friendly manner.

APPENDIXES

Appendix 1 Environmental Air Quality Standard (GB3095—1996)

Class-II

Pollutant	Daily average concentration, mg/m ³
TSP	0.30

Appendix 2 Environmental quality standard for noise (GB3096—2008)

Unit: dB(A)

Function areas	Class-0	Class-1	Class-2	Class-3	Class-4a	Class-4b
Daytime limit	≤50	≤55	≤60	≤65	≤70	≤70
Nighttime limit	≤40	≤45	≤50	≤55	≤55	≤60

**Xinjiang Urban Transport and Environmental
Improvement Project
ADB Loan: 2526-PRC**

**3rd External Environment
Monitoring Report
-Hami City**

November 2013

1. ASSIGNMENT AND MONITORING PURPOSE

According to the environment management plan and relevant requirements specified in the SEIA for Xinjiang Urban Transport and Environmental Improvement Project (the Project) under Asian Development Bank (ADB) loan, the routine monitoring is carried out regarding to the environmental impact during the project construction and commissioning. In line with: (i) the target to mitigate the negative impact of the sub-project; (ii) the relevant specifications and standards of China as well as the safeguard policies of ADB; and (iii) the environmental impact monitoring and data analysis during the period construction and commissioning, it is proposed to evaluate: (i) if the effect of the environment protection measures meets the requirements of the relevant laws and regulations; (ii) the tendency of environmental impact; and (iii) the overall effect of the project environment management plan (EMP). For the commitment to the external environment monitoring of Xinjiang Urban Transport and Environmental Improvement Project, we have carried out the field survey on the project site, and completed the 3rd External Environment Monitoring Report of Hami sub-project.

2. PROJECT INTRODUCTION

2.1 Background

Under the new situation of Central Asia regional economic cooperation, western development, China's accession to the World Trade Organization and the strategic adjustment of the national economy, Xinjiang relies on its rich resources, the unique geographical conditions, as well as large regional market to seize opportunities and seek more space for development. Xinjiang also takes its regional location advantages with its convenient traffic conditions to strengthen exchanges and contacts with the mainland, Central Asia and the western.

Hami City is located in the southern Tianshan Mountain, known as "Western throat, the East-West route," is the east gate of Xinjiang and the central city of eastern Xinjiang. Hami city as the location of Hami municipal administrative office, is political, economic, cultural, technology and circulation center of Hami municipality. Its urban area is 27.98km² with the administrative division of 5 street offices, 3 towns, 15 townships, and has a total population of 512 thousand people with 28 ethnic minorities. Hami city is a new industrial city, mainly for the chemical, building materials, textiles, fur, leather, metallurgy, food ,with developed tertiary industry, Hami city has gradually improved health care, education and other infrastructure.

To meet the growing needs of opening up, Hami city has increased the intensity of urban infrastructure, and made efforts to improve the urban functions. After years of efforts, the urban infrastructure of Hami city has made great achievements. Urban roads have formed the road network from the center outward. However, with the further development of the city, the present urban infrastructure is still lagging behind, and cannot meet the need for further development of the city. Because of present situation road distribution is not reasonable and infrastructure is not perfect, especially the

part of Renmin road still was a dirt track. Most of the other streets roads maintenance delay and damage much without ancillary facilities, which seriously affect the traffic safety and health of surrounding residents. So a portion of the roads should be constructed and upgraded to improve the present road traffic environment and the residents' living environment, promote city development coordination. The sub-project will improve the traffic chaos and mitigate part of the road traffic pressure in Hami city, contribute land value along the roads, and promote economic development. Infrastructure is the "hardware" for urban development. The sub-project will have very big promoting effect on Hami city economic development, social stability as well as people living standard enhancement. Hami city development is important to the economic development, social stability, national unity and prosperity of Xinjiang, also is a very important part of implementing western development strategy in Xinjiang.

2.2 Overview of the Project

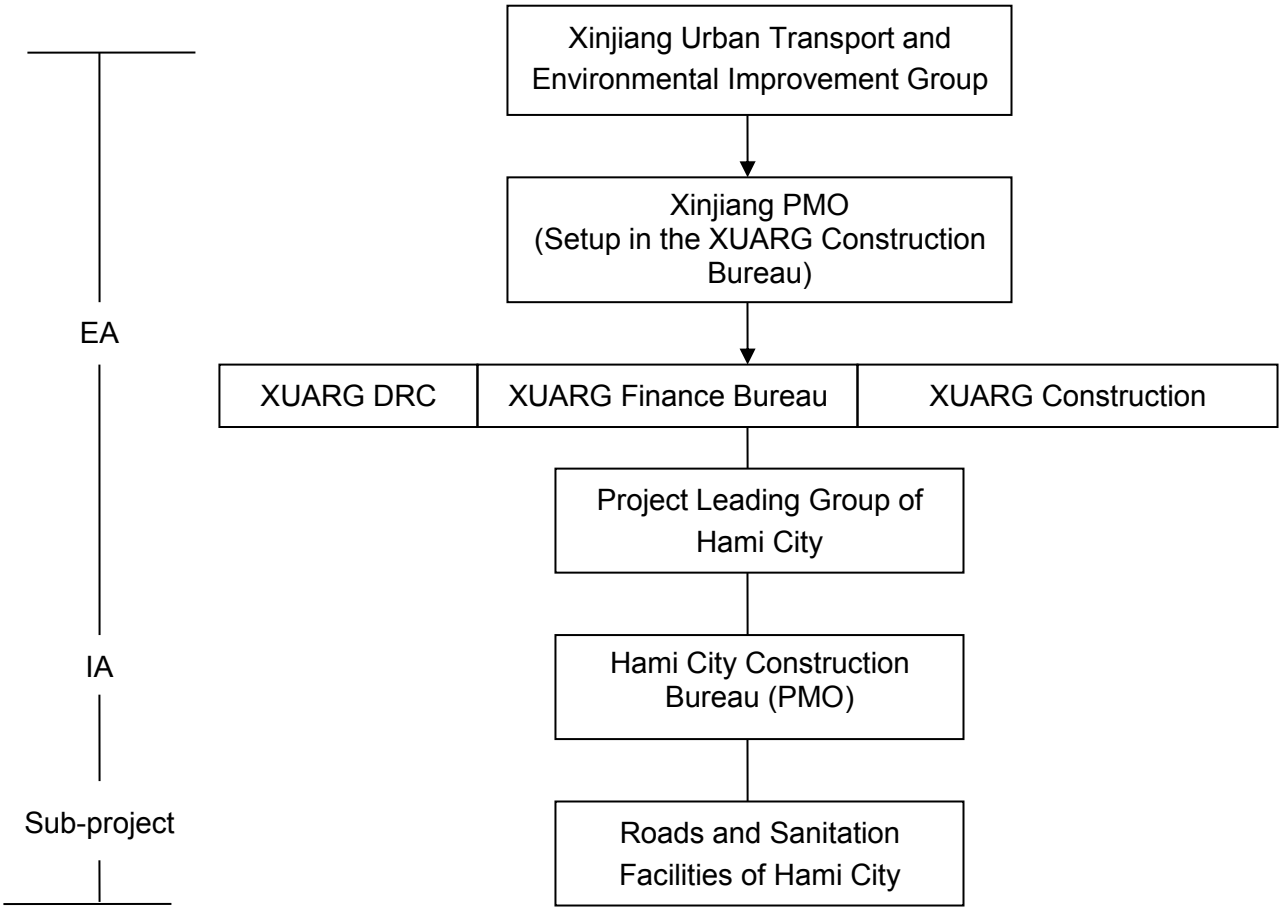
- Project Name: Hami sub-project, ADB Xinjiang Urban Transport and Environmental Improvement Project-
- Construction nature: Upgrading and Extension of Urban Road
- Construction Unit: Construction Bureau of Hami City
- Location: Hami City of Xinjiang
- Construction Scale and Construction Content

Roads, bridges, as well as the corresponding greening, lighting and other ancillary facilities of 3 trunk roads (South Bayi Road, North Bayi Road and Renmin Road) ;respectively setting a 1-4.0m slab culvert in South Bayi Road, North Bayi Road and 2-4.0m slab culvert in Renmin Road of Hami city. The road total length is 9021.75m, including 190314.29 m² of motor vehicle lanes, 60,001.56 m² of non-motorized vehicles lanes, 12,674.88 m² of

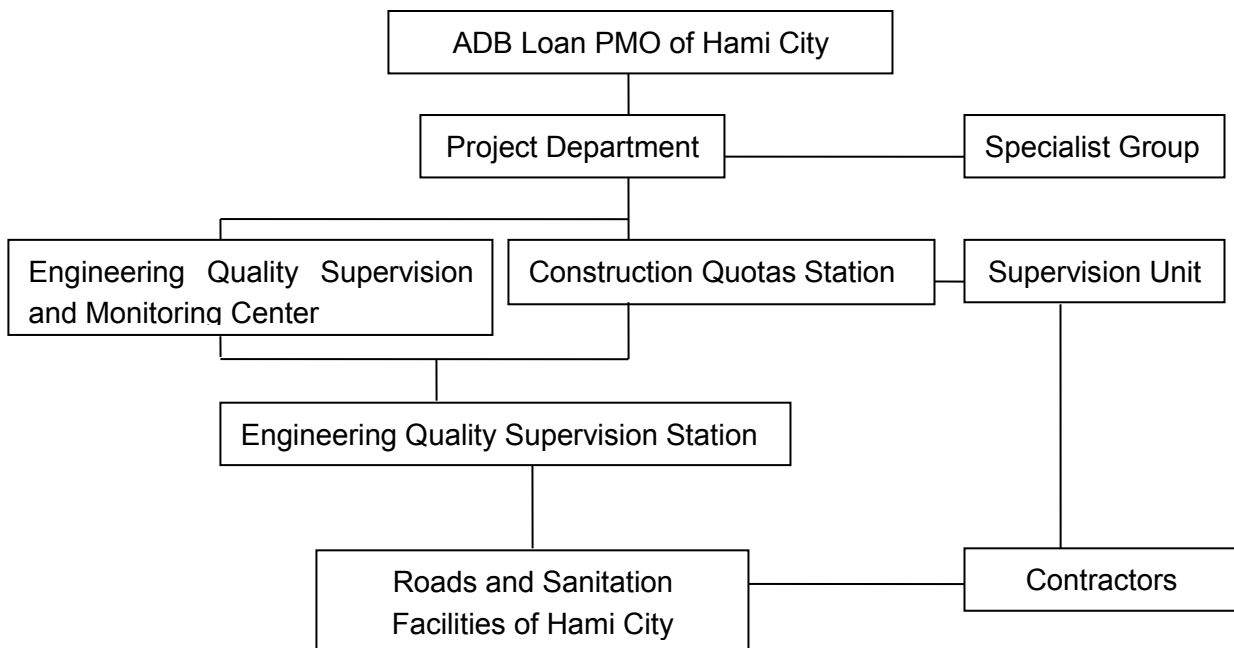
green belt area, 35075.6 m² of sidewalk area, with the total area of 270,500 m².The sub-project also includes the corresponding road ancillary facilities, sanitation facilities(182 trash cans, 2 street sweeper trucks and 1 street cleaning truck).

2.3 Institutional Arrangement

The organization chart of the sub-roject is shown as follows:



Technology management chart



3. ENVIRONMENT MANAGEMENT MEASURES

3.1 Purpose of Environment Management

Project management is carried out for all the components to prevent any environmental pollution during construction and operation, minimize the negative environmental impact of the sub-project during the implementation, and eventually the objective of improving the urban environment of Hami City will be achieved.

3.2 Environment Management Measures

According to the requirements of the relevant environment authority and project environment impact assessment (EIA) reports, the following table 3-1 shows the detailed environmental mitigation measures undertaken by each component.

Table 3-1 Environmental Mitigation Measures Undertaken

Project Period	Environmental Factors	Environmental Impact	Mitigation Measures and Management Arrangements
Construction Phase	Water	Construction wastewater and domestic wastewater from construction workers	There is one wastewater sedimentation tank within the construction site. There is also a simple septic tank. The domestic wastewater is discharged into the pipeline system and further be treated in WWTP after being treated in the septic-tank.
	Atmosphere	Construction and transportation dust	During the construction period, there are sprinklers and the dusty roads are sprayed with water; the road beds are layered, compacted and sprayed with water; covering measures or closed vehicles are used for transportation; vehicles carrying aggregate materials are monitored to avoid overloading and leakage; for the pipeline laying, section construction are used and the roads shall be restored soon after completion to avoid blocking or dust; After the completion of the pipeline works, it is necessary to restore the vegetation on site.
		Exhaust pollution due to construction and transportation vehicles	Excellent maintenance to make the exhaust discharge of automobiles and machineries meet the standards.
	Noise	Noise from the construction equipments and transportation vehicles	Construction equipment and measures are well selected; the construction equipments are well maintained and properly operated so that the equipment noise is minimized; the construction activity is rationally scheduled and are arranged in daytime. If construction during the nighttime (00:00-08:00) due to quality requirement, it must be reported to the local EPA for approval with emergency mitigation measures. For the construction near the sensitive point, such as the schools, the construction shall be arranged during summer vacation time to reduce the impact. Site environment management are strengthened. When the construction material is transported, the speed of the vehicles are limited to be no more

Project Period	Environmental Factors	Environmental Impact	Mitigation Measures and Management Arrangements
			than 20km/h and without whistle.
	Solid waste	Construction spoils and waste	The spoils sand waste are transported to waste treatment plant in Hami city timely. It is suggested to have trash cans in the construction site to collect garbage and transported to landfill in Hami City regularly.
	Ecology	Land occupation due to construction	Temporary land is rationally selected for road and ancillary facilities to shorten the occupied time. The destroyed vegetation should be restored after completion as soon as possible. The spoil is taken in strict accordance with the design and the ecology should be restored soon after the project completion. The construction activities are properly scheduled. And the road construction shall be arranged by section and appropriate time. Ecological restoration will be strengthened.
		Soil erosion	For the rich soil, the surface soil (30cm) are reserved for the landscape on the road sides to reduce soil erosion. Soil and water conservation is strengthened. The spoil is reused. If not, it should be transported to avoid soil erosion after raining. It is forbidden to dump the construction waste, which is stored at certain site and then transported out to avoid soil pollution. For the wood cut, "cutting compensation" measures are taken, that is, one tree will be planted at another site for one tree cut.
Operation Phase	Water	Rain and snow	The runoff will flow into the storm water pipe system and further into WWTP. Instead of deicing salt, artificial or mechanical cleaning methods are used as possible to avoid environmental pollution.
	Atmosphere	Exhaust pollution from vehicles	Abatement and control of vehicle exhaust is complex, which should be considered in the city's overall strategy.
	Noise	Noise from vehicles	Strengthen the green on both sides of the road. Set up whistle forbidden warning signs and decelerating belt at the sensitive points.
	Solid waste	Waste residue	Waste asphalt generated during the maintenance shall be reused for the first consideration. It is suggested that the useless asphalt shall be disposed at the designated site according to

Project Period	Environmental Factors	Environmental Impact	Mitigation Measures and Management Arrangements
			the local environmental protection authorities.

3.3 Compliance status of loan covenant and institutional development

1. Project implementation unit has strictly followed all applicable national and local environmental laws and regulations, ADB's Safeguard Policy Statement(2009), and other laws, regulations and standards of the state, Xinjiang and local government for environmental protection, health, labor and occupational safety, to construct, operate, maintain and monitor project facilities, execute project design and construction contract, operation guiding principle and all environmental alleviation and monitoring measures as detailed in the approved environmental impact assessment report, formulated and implemented environmental monitoring and environmental management measures.

2. Training and capacity development: in order to properly implement this ADB Project, Hami City has established corresponding sub-project office, with full-time member to be responsible for environmental affairs of the project, and worked out relevant management system. During Nov. 3 to 5, 2009, ADB Beijing Office offered relevant training of environmental protection for Xinjiang Project, assisting project management personnel of Xinjiang at various levels further understand and get familiar with relevant provisions and execution procedures of ADB loan environmental protection policy and improve business quality. In Oct. 2010 Xinjiang Project Office organized personnel of sub-project areas to attend the two-and-a-half-day "Best Practice in Sustainable Development of Asian-Pacific Cities" held in Shanghai by ADB East Asia Bureau and the School of Architecture and Urban Planning, Tongji University, carry out exchange of knowledge about sewage and sludge treatment, energy efficiency, urban planning case and urban management, and pay a visit to Zhujiajiao Town, Shanghai reputed as one of best planning cases, to the sewage control project Phase II of

Shanghai environmental project with ADB loan, and to sub-project of Bailonggang sludge treatment project. In Jan. 2011 Xinjiang Project Office organized all sub-project units training in Urumqi about environmental monitoring in ADB loan project. In Apr. 2012 Xinjiang Project Office organized all sub-project units training in Urumqi about environmental monitoring in ADB loan project.

4. ENVIRONMENT PROTECTION TARGET

According to the EMP in “Hami City Environmental Impact Assessment Report” under ADB loan Xinjiang Urban Transport and Environment Improvement Project, the external environment monitoring is conducted regarding to the related environmental impact factors during construction (such as construction wastewater and domestic sewage, dust, noise, solid wastes and impact to vegetation period) and during commissioning (vehicle exhaust and noise). The sub-project’s environmental protection targets for different components are mainly as follows:

Table 4-1 List of Environment Protection Targets

No.	Environmental Factors	Environment Protection Targets	Applied Standard
1	Water environment	Shichengzi River	Category-III
2	Atmosphere environment	Earthquake Bureau	Class-II
3	The Sensitive Point of Acoustic environment	The Sensitive Point of Renmin Road	Class-1, 2
4	Acoustic environment-road traffic noise	Renmin Road	Class-4a

5. WORK SCOPE OF THE ENVIRONMENT MONITORING

According to the environmental targets for sensitive receivers and possible major environmental impacts of construction phase specified in the EIA reports, along with the actual project progress, we have conducted the field survey and environmental monitoring for the sub-project. The work scope for the External Environment Monitoring of the Project includes:

1. The location and time of monitoring is determined according to the sub-project's actual progress, construction activities and routes. The locations of the 1st and 2nd monitoring were referred to as well.

2. The key monitoring locations are selected near sensitive sections, such as residential areas, schools, and etc. To cover the protection targets specified in the EIA reports as well as the population density, construction activities and site, and project progress, the monitoring locations are selected at the representative points.

3. During monitoring, brief notes are taken, including the major contractors and major construction activities, daily schedule, and equipments.

5.1 Surface Water Monitoring

Monitoring Items: Flow, pH, COD_{Cr}, COD_{Mn}, BOD₅, NH₃-N, SS, TP, TN, Cn⁻, volatile phenol, Cr⁶⁺, petroleum, DO, anionic surface active agent, Fecal coliform, temperature, salinity, conductivity, Cl⁻, F⁻, SO₄²⁺, NO₃⁻, Cu, Pb, Cd, As, Hg, Zn, Se

Monitoring location: Hami Shichengzi River

Monitoring time: May 6, 2013

5.2 Atmosphere Monitoring

Monitoring Items: SO₂, NO₂, PM₁₀, 24hours average level.

Monitoring location: on the roof of the Earthquake Bureau by the side of Renmin Road

Monitoring time: sampling duration of 24h per day, continually for 7 days from May 6-12, 2013 with automatically atmosphere monitor.

5.3 Noise Monitoring

Monitoring device: noise statistics analyzer of AWA5680

Monitoring locations: (i) Road traffic noise. The representative road sections were identified and selected.

(ii) Sensitive points within 150m of Renmin Road

Monitoring time: during 10:00-13:00,16:00-19:00 in the daytime and 00:00-06:00 in the nighttime on May 10, 2013 at each sensitive points.

6. MONITORING METHOD AND EVALUATION STANDARD

According to the relevant national regulations, environmental function classification of Hami City and relevant contents in the EIA reports for the sub-project, the monitoring method and evaluation standards are determined as follows (see Table 6-1).

Table 6-1 List of Monitoring Methods and Evaluation Standards

Environmental Factors	Sampling and Analyzing Method	Evaluation Standards
Surface water	Technical Codes for Surface Water and Wastewater Monitoring (HT/T91-2002), Design Specifications for Water Quality Sampling Method (GB12997-91), Technical Guidance for Water Quality Sampling (GB12998-91), Technical Specifications for Water Quality Sampling, Sample Storage and Management (GB12999-91).	Category-III of Surface Water Environment Quality Standards (GB3838-2002)
Atmosphere	Environmental Air Quality Standards (GB3095-1996)	Class-II of Environmental Air Quality Standards (GB3095-1996)
Noise	Environmental quality standard for noise (GB3096-2008)	"Class 2 Area, Class 4a for artery road " Standard of Environmental quality standard for noise (GB3096-2008);

7. RESULT AND DISCUSSION

7.1 Findings of Surface Water Monitoring

Table 7-1 Water Quality Monitoring Data of Shichengzi River in Hami city

Unit: mg/l (except temperature, pH)

No.	Item	Value	Evaluate	(GB3838-2002): Category-III
1	PH	8.2	Reach the Standard	6-9
2	Dissolved solid	204	/	/
3	SS	156	/	/
4	DO	8	Reach the Standard	≥5
5	COD _{Mn}	2	Reach the Standard	≤6
6	BOD ₅	1	Reach the Standard	≤4
7	COD _{Cr}	8	Reach the Standard	≤20
8	Fluoride	0.32	Reach the Standard	≤1.0
9	Cl ⁻	13.4	Reach the Standard	≤250
10	NO ₃ ⁻	1.06	Reach the Standard	≤10
11	SO ₄ ²⁻	57.2	Reach the Standard	≤250
12	Conductivity	32	/	/
13	TP	<0.01	Reach the Standard	≤0.05
14	TN	0.82	Reach the Standard	≤1.0
15	Petroleum	< 0.01	Reach the Standard	≤0.05
16	S ²⁺	< 0.002	Reach the Standard	≤0.2
17	NH ₃ -N	< 0.025	Reach the Standard	≤1.0
18	Volatile Phenols	< 0.001	Reach the Standard	≤0.005
19	Cr ⁶⁺	< 0.004	Reach the Standard	≤0.05
20	Cn ⁻	< 0.001	Reach the Standard	≤0.2
21	Cu	< 0.05	Reach the Standard	≤1.0

22	As	< 0.5	Reach the Standard	≤0.05
23	Hg	< 0.025	Reach the Standard	≤0.0001
24	Pb	< 0.1	Reach the Standard	≤0.05
25	Zn	< 0.05	Reach the Standard	≤1.0
26	Cd	< 0.1	Reach the Standard	≤0.01
27	Se	< 0.001	Reach the Standard	≤0.01
28	Anion surface active agent	< 0.05	Reach the Standard	≤0.3
29	Fecal coliform	<2	Reach the Standard	≤10000
30	Flow (m³/s)	0.76	/	/

According to the monitoring data in Table 7-1, it is observed that the monitoring items in Shichengzi River meet the Category-III requirements of Surface Water Environment Quality Standard (GB3838-2002); and belongs to clean and not polluted water body.

7.2 Findings of Noise Monitoring

All sensitivity points had been monitored along Renming Road referring to the road traffic noise monitoring standard of "Environment quality Standard of Noise" (GB3096-2008).

Table7-2.1 Noise Monitoring Data of Noise Sensitive Points

Unit: dB (A)

No.	Name of sensitive point	Name of Road	Distance to road shoulder(m)	Leq(dB)		
				Morning	Noon time	Night time
Class-2 standard, Environmental quality standard for noise (GB3096—2008)				50		60
1	Shannxi Temple	Renming Rd.	20	47.3	47.7	43.7
2	Qawak Mosque	Renming Rd.	6	48.2	48.8	43.9
3	No.1 School	Renming Rd.	20	49.4	50.2	44.8

According to the monitoring data in the Table 7-2.1, it is observed that the noise level of all sensitive points near Renmin Road can meet the national standard.

The road traffic noise of Renming road under operation is shown in the Table 7-2.2 as below.

Table7-2.2 Noise Monitoring Data of road traffic noise on Renming Rd.

Unit: dB (A)

No.	Locations	Monitoring Time	Traffic flow (cars/hour)	Leq(dB)	Class-4a standard, Environmental quality standard for noise (GB3096—2008)
1	Renming Rd.	Day time	1053	60.6	70
2	Renming Rd.	Night time	33	50.7	55

According to the monitoring data in the Table 7-2.2, it is observed that the traffic noise level of Renmin Road can meet the national standard.

7.3 Findings of Atmosphere Monitoring

Table 7-3 Monitoring Data of Atmosphere pollutants

Monitoring Date	Sampling locations	Analytic item Unit (mg/m ³)		
		SO ₂	NO ₂	PM ₁₀
Environment Air Quality Standard (GB3095—1996) Class-II Standard		0.15	0.12	0.15
May 6,2013	Roof of local Earthquake Bureau	0.013	0.011	0.097
May 7,2013		0.017	0.013	0.049
May 8,2013		0.010	0.010	0.084
May 9,2013		0.015	0.024	0.048
May 10,2013		0.012	0.032	0.061
May 11,2013		0.015	0.020	0.075
May 12,2013		0.020	0.010	0.071

The pollution indexes of general atmospheric pollutant, including SO₂, NO₂, and PM₁₀ see Table 7-4.

Table 7-4 The Pollution Indexes of Atmosphere Pollutants

Monitoring item	Average value (mg/m ³)	Standard limit (mg/m ³)	Pollution index (mg/m ³)
SO ₂	0.015	0.15	0.10
NO ₂	0.017	0.12	0.14
PM ₁₀	0.069	0.15	0.46

According to the results listed in Table 7-3 and 7-4, it is found that regarding to the atmosphere sensitive receivers around Renmin Road, the daily average concentrations of SO₂, NO₂, and PM₁₀ meet Environment Air Quality Standard (GB3095—1996) Class-II Standard based on the monitoring data of the urban atmosphere quality automatic monitoring location set up on the roof of local Earthquake Bureau. No data exceed the standard limit and air quality is good.

7.4 Summary

According to the field survey and environment monitoring, during the project operation, Hami sub-project has followed the relevant requirements specified the SEIA report of the Project. The environment management measures undertaken and their performance are summarized in Table 7-5.

**Table 7-5 Current Implementation and Effects of Project
Environmental Management on Renmin Road during operation phase**

No.	Pollution Source	Environment Management Measures Taken	Performance
1	Ecology	1. Vegetation and rehabilitation on the road and its both sides during operation phase. 2. Keep road ancillary facilities clean and enhance roads ancillary facilities harmony with the surrounding environment.	Afforestation of both sides is good.
2	Noise	1.Plant more trees along both sides of the road, especially for sensitive receivers 2.Optimitzaion land utilization planning of both sides along the path	Meet the relevant applicable standard limit and no negative impact to residents

No.	Pollution Source	Environment Management Measures Taken	Performance
			nearby
3	Air	1. Develop and improve the exhaust control regulations and strengthen exhaust control management. 2. Improve vehicle performance, and install exhaust purification devices, and use lead-free petrol to reduce the emission of air pollutants. 3. Develop the public transportation system to slow down the rapid growth of private cars. 4. Increase the urban green coverage rate	Minor adverse impact to surrounding atmosphere environment
4	Water	1. The road surface runoff through the initial rainfall will be led to both sides of the road and discharged into municipal drainage pipe network, then to waste water treatment plant. 2. Reduce the use of deicing salt. The manual and mechanical methods are recommended to reduce pollution.	No negative impact to drinking water body
5	Solid waste	Consider reusing the off scum of asphalt or transporting it to locations approved by the local environmental authority	No adverse impact to surrounding environment

8. CONCLUSIONS AND SUGGESTIONS

8.1 Conclusions

Based on the site survey and monitoring for the third external environment monitoring report, it is found that on Renmin Road the implementation unit of partly completed project has undertaken the relevant environmental management measures specified in the project EIA reports, and shown enough concern on the possible negative environmental impact due to the project implementation. According to the monitoring results, the mitigation measures undertaken during the project operation have minimized the adverse environmental impact. The conclusions of the environmental monitoring are summarized as follows.

(i) Air quality

Upon completion of Renmin Road, automobile exhaust has become the main air pollutant source along the route. Compared to the first and second external environmental monitoring results, this monitoring concentration fluctuation of SO₂, NO₂ were normal within the scope of national standards. So the operation of Renmin Road has minor effect on the air environment around. In order to effectively reduce the pollutant of automobile exhaust, the automobile emission examination system should be applied to forbid or limit travelling of the vehicles exceeding the allowed emissions limit. It will effectively control the exhaust diffusion to surrounding environment through strengthening afforestation on both sides of the path. Those plants (trees, bush and so on, or lawn) in the both sides can absorb or adsorb automobile exhaust.

(ii) Acoustic environment

After completion of Renmin Road, different driving conditions and different models of vehicles have different noise intensity during the operation. As the vehicles increase, the noise impact on both sides of the path will also

increase but not largely. Through the comparison between the first and second external environmental monitoring, the daytime traffic of third monitoring had increased, but monitoring data had decreased 4.9dB compared with the second monitoring. While the surrounding noise sensitive points increase was less than 3dB. So the noise of Renmin Road, has been effectively controlled.

(iii) Water quality

After Renmin Road put to operation, the road runoff has been the main form of water pollution along the route. The precipitation is scarce and the evaporation is very intense in Hami city. Only if strong rainstorm occurs, it is very difficult to form runoff on the path. The runoff through the rainfall will be discharged through the surface drainage system into the urban drainage pipe network and have no influence on the water body along the route.

8.2 Suggestions

1. Continue to strengthen vegetation and rehabilitation on both sides of the road. Keep road ancillary facilities clean and enhance roads ancillary facilities to coordinate with the surrounding environment.
2. Establish and improve the road management system. Set up whistle warning sign and deceleration strip on the sensitive points.

APPENDIXES

Appendix 1 Environmental Air Quality Standard (GB3095—1996) Class-

II

Pollutant	Daily average concentration, mg/m ³	Hourly average concentration, mg/m ³
SO ₂	0.15	0.50
NO ₂	0.12	0.24
PM ₁₀	0.15	-----

Appendix 2 Environmental quality standard for noise (GB3096—2008)

Unit: dB(A)

Function areas	Class-0	Class-1	Class-2	Class-3	Class-4a	Class-4b
Daytime limit	≤50	≤55	≤60	≤65	≤70	≤70
Nighttime limit	≤40	≤45	≤50	≤55	≤55	≤60

Appendix 3 Surface Water Environment Quality Standard

Unit: mg/L

Item	Surface Water Environment Quality Standard (GB3838-2002): Category-III
PH	6—9
DO	≥5
COD _{Mn}	≤6
BOD ₅	≤4
NH ₃ -N	≤1.0
Fluoride	≤1.0
Cu	≤1.0
Zn	≤1.0
Se	≤0.01
As	≤0.05
Hg	≤0.0001
Pb	≤0.05
Cd	≤0.005
Cr ⁶⁺	≤0.05
CN-	≤0.2
Volatility Phenol	≤0.005
Petroleum	≤0.05
S ²⁻	≤0.2

Item	Surface Water Environment Quality Standard (GB3838-2002): Category-III
Total soluble solid	/
Total hardness	/
SO ₄ ²⁻	≤250
Cl ⁻	≤250
COD _{cr}	≤20
TP	≤0.05 (Lake, reservoir)
TN	≤1.0
NO ₂ ⁻	/
NO ₃ ⁻	≤10
Fe	≤0.3
Mn	≤0.1

Xinjiang Urban Transport and Environmental

Improvement Project

ADB Loan No.: 2526-PRC

The 3rd Environment Monitoring Report of Kuytun City

August of 2013

1 TASK SOURCE AND MONITORING PURPOSE

According to environmental management plan and relevant requirement under project of Kuytun urban transport and environmental improvement with ADB loan, our station, as entrusted by Kuytun Construction Bureau, according to relevant national codes and standards as well as ADB's safety policy, has carried out monitoring of environmental impact factors during trial operation period after completion of the project, to evaluate whether effect of the environmental protection measures in trial operation period meets requirements of environmental protection law, and finally prepared this Report on the First Half 2013 Monitoring of External Environment of Kuytun City under the Project of Kuytun Urban Transport and Environmental Improvement with ADB Loan on the basis of site survey and monitoring in June 2013.

2 DESCRIPTION OF THE PROJECT

2.1 Project Background

Kuytun, a garden city, serves as the regional center of land transport, post and telecommunication in North Xinjiang, highlighting commerce and trade, finance and processing industry. Completion of Urumqi-Kuytun Expressway and North Xinjiang Railway fueled economic development of Kuytun, and construction of Jinghe-Yining-Horgos Railway and Kuytun-Salim Lake high-grade highway will surely drive Kuytun's economic development to a higher level, and make the city play more and more striking role as a central one, develop stronger and stronger radiating and gathering ability and meet more frequent urban-rural and inter-city economic ties, information exchange, traffic and people flow, which means higher requirements for urban transport conditions. Most of current roads in the city is upgraded from original earth road or sand-stone road, characterized by thin structural layer, narrow surface and low standard. After reform and opening-up, particularly during the “8th Five-Year Plan” and the “9th Five-Year Plan” period, the city government quickened construction of road and built new road in urban area, making urban transport conditions improved to some extent. However, the

construction is far behind needs of increase of transport. Therefore it is very necessary to improve road in urban area for enhancing ties of the central city with surrounding regions.

Currently Kuytun City has basically formed skeleton of city road network, but the network is less perfect, some sections are in the state of low grade and poor situation, making vehicle flow gather in downtown area badly. Added with dense population, buildings and commercial outlets in old urban area, some roads have been overloaded. According to the overall plan of the city, the urban area will surely expand eastward and westward, for which infrastructure should be improved first. Therefore, those newly built and expanded road is very necessary.

2.2 Organization

This project has the organization chart as follows:

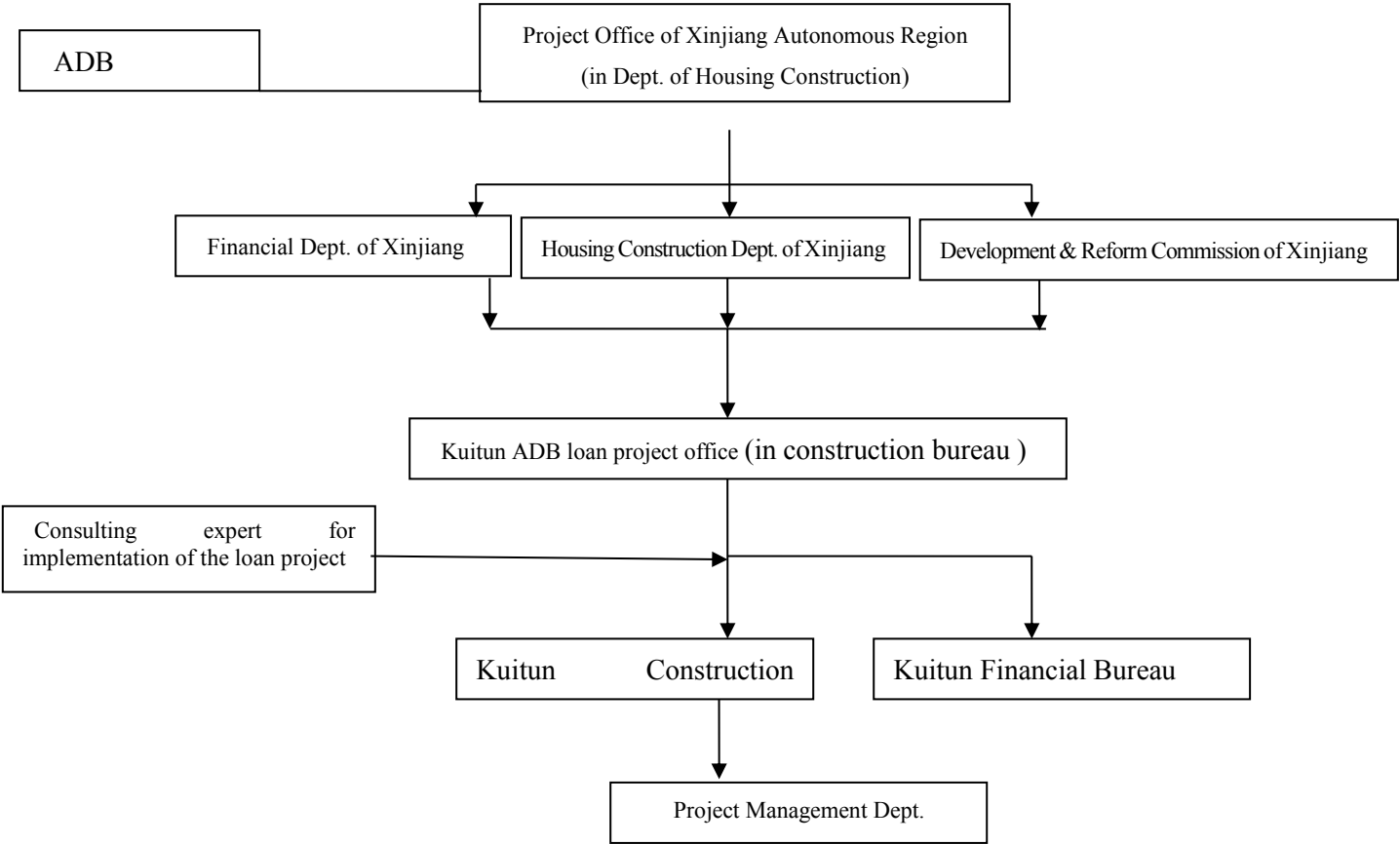


Fig. 2-1 ADB Loan Project Organization Chart

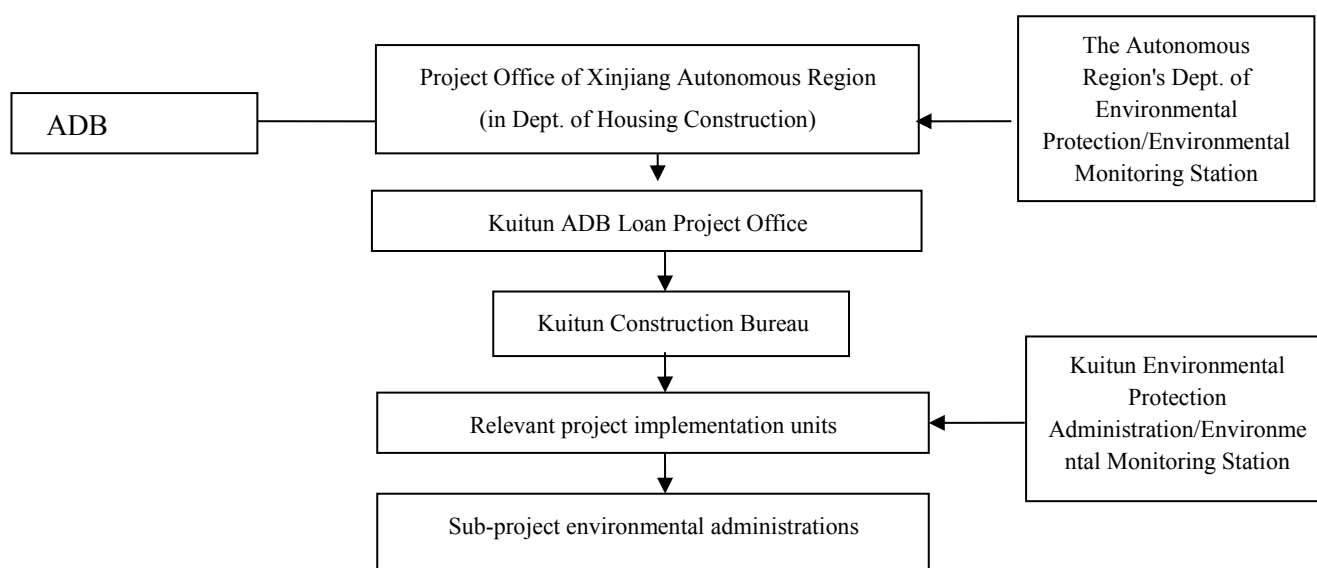


Fig. 2-2 Organization chart for environmental management

2.3 Project Progress

Summary 2-1 of progress of Kuytun urban transport and environmental improvement project (July 2013):

Table 2-1 Progress of Kuytun Urban Transport and Environmental Improvement Project
(by July 2013)

No.	Project Name	Road Section for Construction	Construction Time	Cumulative Investment by the End of July 2013	Works Completed by the End of July 2013
1	S. Tuanjie Street	Beijing Road —Railway Station	April 25, 2010 — July 13, 2013	11.662 million yuan	All construction works have been completed
2	E. Beijing Road	Manas Street — Shanshan Street		10.65 million yuan	
3	E. Urumqi Road	Manas Street — Shanshan Street		9.80 million yuan	
4	W. Qitai Road	Tacheng Street—Tuoli Street		1.60 million yuan	
5	Tacheng Street	S. Ring Road —W. Beijing Road		4.726 million yuan	
6	Hutubi Street	Korla Road —Urumqi Road	March 2010 — July 13, 2013	2.93 million yuan	Construction completed (Sidewalk of some sections had not been completed, but the

No.	Project Name	Road Section for Construction	Construction Time	Cumulative Investment by the End of July 2013	Works Completed by the End of July 2013
					main road had been opened for traffic)
7	Wusu Street	S. Ring Road —Urumqi Road	March 15, 2010 — July 13, 2013	3.605 million yuan	Construction completed (Sidewalk of some sections had not been completed, but the main road had been opened for traffic)
8	W. Urumqi Road	Tuoli Street—National Highway No.217		9.32 million yuan	
9	Korla Road	Tacheng Street—Tuoli Street		2.58 million yuan	
10	Kashi Road	Tacheng Street—Tuoli Street		4.82 million yuan	
11	Hefeng Street	Aksu Road —Urumqi Road		3.685 million yuan	
12	Emin Street	S. Ring Road —W. Beijing Road		3.8485 million yuan	
13	Xiyi Street	W. Kashi Road —W. Beijing Road		450,000 yuan	

3 ENVIRONMENTAL MANAGEMENT MEASURES

3.1 Purpose of Environmental Management

Carrying out project management of sub-project in the project to prevent environmental pollution during construction period and operation period, minimize negative impact on environment during implementation of this project and finally achieve the goal of improvement of urban transport and environment of Kuytun City.

3.2 Environmental Management Measures

According to requirements of competent department for environmental protection and environmental impact report of the project, the environmental management measures to be take for the project are detailed as Table 3-1.

**Table 3-1 Environmental Management Measures for Kuytun Urban
Transport Improvement Project**

Project Stage	Influencing Factor	Environmental Impact	Improvement Measures and Management Arrangement
Operation period	Exhaust	Automobile tail gas	(1) To develop gas vehicle to reduce tail gas pollution (2) To install motor vehicle tail gas controlling device (3) To quicken cull-out of old vehicles (4) To greatly develop public transit and decrease automobile speed (5) To strengthen maintenance of road sections under construction and traffic management. (6) To formulate and perfect motor vehicle tail gas control regulations; to strengthen motor vehicle tail gas control management
	Noise	Traffic noise	(1) Neighborhood community and school should not be built within 150m around the pavement. As the economic development and motor vehicle manufacturing technology improvement, the standard of motor vehicle emission can be improved successively in order to reduce the road transport noise. (2) When passing along sensitive points such as school, etc, vehicles must not toot, in order to avoid interruption with normal class of students, and should drive more slowly to avoid traffic accident. (3) Test should be carried out regularly in noise sensitive areas such as school. If finding noise higher than relevant standard, necessary precautions must be taken

Project Stage	Influencing Factor	Environmental Impact	Improvement Measures and Management Arrangement
			to avoid influence on teachers and students and on their studies and life.
	Ecological environment	Vegetation recovery and road greening	(1) Landscaping: to strengthen vegetation reinstatement and road landscaping. (2) Road-related facilities: to guarantee cleanness of road-related facilities and enhance landscape harmony

In view of the situation that the night road traffic noise was over-standard in the last report period, project environmental management organization keeps contract with the environmental protection bureau for supervision of project environments, and entrusts qualified supervision organization to monitor the external environments. In this report period, we mainly take the following measures and controls night road traffic noise of over-standard sections. (1) Erecting sound barrier in front of environmental sensitive points or taking other measures; regularly monitoring noise; (2) Improving traffic management, strengthening road maintenance and vehicle maintenance, strictly limiting speed and perfecting public transit management; (3) Planting tree on both sides of the over-standard sections, particularly in place near environmental sensitive points (community, school, hospital and hotel, etc); improving landscaping ratio. (4) Erecting sign of No Tooting during Class Hour near school.

3.3 Compliance of Loan Covenant and Institutional Development

1. Project implementation unit has strictly followed all applicable national and local environmental laws and regulations, ADB's Environmental Policy (2002), and other laws, regulations and standards of the state, Xinjiang and local government for environmental protection, health, labor and occupational safety, to construct, operate, maintain and monitor project facilities, execute project design and construction contract, operation guiding principle and all environmental alleviation and monitoring measures as detailed in the

approved environmental impact assessment report, formulate and implement environmental monitoring and environmental management measures.

2. Training and capacity development: in order to properly implement this ADB Project, Kuytun City has established corresponding sub-project office, with full-time member to be responsible for environmental affairs of the project, and worked out relevant management system. During Nov. 3 to 5, 2009, ADB China Office offered business training of environmental protection for Xinjiang Project, making project management personnel of Xinjiang at various levels further understand and get familiar with relevant provisions and execution procedures of ADB loan environmental protection policy and improve business quality. In Oct. 2010 Xinjiang Project Office organized personnel of sub-project areas to attend the two-and-a-half-day "Symposium for Best Practice in Sustainable Development of Asian-Pacific Cities" held in Shanghai by ADB East Asia Bureau and the School of Architecture and Urban Planning, Tongji University, carry out exchange of knowledge about sewage and sludge treatment, energy efficiency, urban planning case and urban management, and pay a visit to Zhujiajiao Town, Shanghai reputed as one of best planning cases, to the sewage control project Phase II of Shanghai environmental project with ADB loan, and to sub-project of Bailonggang sludge treatment project. In Jan. 2011 Xinjiang Project Office organized all sub-project units to have training in Urumqi about environmental monitoring in ADB loan project. In April 2012 Xinjiang Project Office organized all sub-project units to have training in Urumqi about environmental monitoring in ADB loan project. In May 2012 Xinjiang Project Office organized all sub-project units to have training in Hefei, Anhui, and made site inspection about urban environmental improvement projects in Hefei. In January 2013, the consulting firm assisted XPMO to implement Singapore training. The teams would mainly learning the experience of urban transportation, sanitation, gardens, green and environmental protection in Singapore, and these trainings was implemented in the form of seminars, discussion and site visiting. In June 2013, the ADB Beijing office provided a Hub-trainings in Urumqi covering: i) bidding and procurement; ii) loan

disbursement; iii) financial management; iv) environmental protection and v) resettlement etc.

4 ENVIRONMENTAL PROTECTION OBJECT

According to environmental management plan of ADB loan —— Kuytun urban transport and environmental improvement project, monitoring of environmental impact factors (noise and smell) during project construction and operation period has been carried out. Environmental protection object of the project involved in this environmental monitoring is as follows:

Table 4-1 Summary of Environmental Protection in the Project

No.	Environmental Factor	Environmental Protection Object	Environmental Function
1	Atmospheric environment	Tongjili Community	Environmental air Class II
		No. 4 Middle School	
		Former Prefecture Architecture School	
3	Sound environment	Tongjili Community	Class II Area of urban environmental noise
		Residential area of Dongxuanyuan Power Plant	
		No. 4 Middle School	
		No. 5 Primary School	
		Prefecture Kuytun hospital	
		No. 7 Middle School of Kuytun City	
		Kuytun Hotel	
		Former Prefecture Architecture School	

5 SPECIFIC DESCRIPTION OF THIS ENVIRONMENTAL MONITORING

Currently, main road of most sections have been opened for traffic, and sections having not completed remains uncompleted due to objective reasons, so no construction activity of the project is executed this year, and actual site test should be mainly carried out in operation period. According to the environmental sensitive object as specified in the environmental impact report and the possible main environmental impacts in project operation period, our station executed site survey and environmental monitoring of Kuytun urban transport improvement project currently in progress, which are described as follows:

1. Air pollution during road operation mainly comes from secondary dust from auto driving and tail gas, with main pollutants of TSP, NO₂ and CO. Therefore, TSP, NO₂ and CO are determined as the indexes for this atmospheric environment monitoring.
2. Noise monitoring covers road traffic noise and sensitive point noise monitoring, and traffic volume is recorded at the same time.
3. Specific implementation monitoring points are determined according to the completed sections and the sections' sensitive points, mainly in more sensitive areas such as residential area and school, etc. While covering protection object as mentioned in the environmental impact report, monitoring points are arranged in representative places.
4. Monitoring is executed according to corresponding technical specifications for environmental monitoring.

5.1 Atmospheric Environment Monitoring

Monitoring item: TSP, NO₂ and CO

Monitoring points: atmospheric environment sensitive points near the road to be improved and expanded.

Monitoring time period: monitoring for three consecutive days; sampling time: no less than 12h for TSP per day, no less than 18h for NO₂, CO per day; at least 45 minutes per hour. For details, see Table 5-1.

**Table 5-1 Information on Atmospheric Environment Monitoring of Kuytun
Urban Transport Improvement Project**

Project Name	Name of Section	Monitoring Point	Monitoring Time
S.Tuanjie Street	Beijing Road —Railway Station	Tongjili Community	June 12 to 14, 2013
E. Urumqi Road	Manas Street —Shanshan Street	No. 4 Middle School	June 12 to 14, 2013
Korla Road	Tacheng Street—Tuoli Street	Former Prefecture Architecture School	June 12 to 14, 2013

5.2 Monitoring of Noise Environment

Monitoring item: equivalent A sound level (Leq).

Monitoring points: monitoring of noise environment sensitive points on both sides of 11 roads and in the range of 150m around the roads.

Monitoring time period: monitoring by twice a day (24hours), for one day in total.

**Table 5-2 Information on Noise Monitoring of Kuytun Urban Transport
Improvement Project**

No.	Project Name	Name of Section	Traffic Noise Monitoring Points	Monitoring Points Involving Sensitive Point	Monitoring Time
1	S.Tuanjie Street	Beijing Road — Railway Station	Xinyuan Hotel	Tongjili Community	June 12 to 13, 2013
2	E. Beijing Road	Manas Street — Shanshan Street	Kuytun JinYE Textile	Residential area of Dongxuanyuan Power Plant	June 12 to 13, 2013
3	E. Urumqi Road	Manas Street — Shanshan Street	No. 4 Middle School	No. 4 Middle School	June 12 to 13, 2013
4	W. Qitai Road	Tacheng Street—Tuoli Street	No. 5 Primary School	No. 5 Primary School	June 12 to 13, 2013
5	Tacheng Street	S. Ring Road — W. Beijing Road	Yelintao Building 31	Prefecture Kuytun Hospital	June 12 to 13, 2013
6	Wusu	S. Ring Road — Urumqi Road	Bureau of Agriculture,	No. 7 Middle School of Kuytun	June 12 to 13, 2013

No.	Project Name	Name of Section	Traffic Noise Monitoring Points	Monitoring Points Involving Sensitive Point	Monitoring Time
	Street		Forestry, Fishery and Animal Husbandry	City	
7	W. Urumqi Road	Tuoli Street—National Highway No.217	Distillery of Agricultural Regiment No.131	Kuytun Hotel	June 12 to 13, 2013
8	Korla Road	Tacheng Street—Tuoli Street	Former Prefecture Architecture School	Former Prefecture Architecture School	June 12 to 13, 2013
9	Kashi Road	Tacheng Street—Tuoli Street	New public security bureau office building	Dafenghe Hotel	June 12 to 13, 2013
10	Hefeng Street	Aksu Road — Urumqi Road	Artillery Regiment	Artillery Regiment Residential Quarters	June 12 to 13, 2013
11	Emin Street	S. Ring Road — W. Beijing Road	Meteorological Station	Heating Company	June 12 to 13, 2013
12	Hutubi Street	Korla Road—Urumqi Road	Vocational technical secondary school	Residential Quarters of Vocational technical secondary school	June 12 to 13, 2013
13	Xiyi Street	West Kashi Road—West Beijing Road	Xihuayuan unified construction house	Xihuayuan unified construction house	June 12 to 13, 2013

6 MONITORING METHOD AND EVALUATION STANDARD

According to relevant technical specifications of China, Kuytun Environmental Function Division and environmental impact report of Kuytun urban transport improvement project, analysis method and evaluation standard for this environmental monitoring are determined as Table 6-1.

Table 6-1 Summary of Analysis Method and Evaluation Standard for Monitoring

Environment al Factors	Sampling and Analysis Method	Evaluation Standard
Atmosphere	Determination of Total Suspended Particulates in Environmental Air (GB/T15432—1995)	Environmental Air Quality Standard (GB3095-1996) Class II
	Saltzman Method for Determination of Nitrogen Oxide in Environmental Air (GB/T15436-1995)	
	Non-disperse Infrared Method for Determination of CO in Air (GB9801-1988)	
Noise	Sound Environmental Quality Standard (GB3096-2008)	Class 2 and Class 4a Areas' standard of Sound Environmental Quality Standard (GB3096-2008)

7 ENVIRONMENTAL MONITORING RESULT AND EVALUATION

7.1 Atmospheric Environment Monitoring Result

Atmospheric environment monitoring result is shown as Table 7-1:

Table 7-1 Summary of Atmospheric Environment Monitoring Result

Project Name	Section	Sensitive Point		Pollutant Concentration (mg/m ³)		
		Name	Distance from road center	TSP	NO ₂	CO
S. Tuanjie Street	Beijing Road — Railway Station	Tongjili Community	150m east of the road	0.151	0.039	<1.25
E. Urumqi Road	Manas Street — Shanshan Street	No. 4 Middle School	50m north of the road	0.243	0.061	<1.25
Korla Road	Tacheng Street—Tuoli Street	Former Prefecture Architecture School	100m north of the road	0.101	0.045	<1.25
Limited value of Class II standard of Environmental Air Quality Standard(GB3095-1996)				0.30	0.12	4.0
Result evaluation				Up-to-standard		

7.2 Noise Environment Monitoring Result

1. Noise environment sensitive point monitoring

Day-and-night noise monitoring of noise environment sensitive points in this project has been carried out, with noise environment monitoring result shown as Table 7-2:

Table 7-2 Summary of Environmental Sensitive Point Noise Monitoring

Result unit: dB(A)

No. of Monitoring Point	Name	June 12		June 13	
		Day	Night	Day	Night
1#	Tongjili Community	52.3	48.5	54.2	44.5

No. of Monitoring Point	Name	June 12		June 13	
		Day	Night	Day	Night
2#	Residential area of Dongxuanyuan Power Plant	47.5	43.6	53.8	46.2
3#	No. 4 Middle School	48.5	42.5	47.8	46.3
4#	No. 5Primary School	52.5	45.4	49.3	44.5
5#	Prefecture Kuytun Hospital	54.3	48.1	52.7	46.6
6#	No. 7Middle School of Kuytun City	51.8	45.5	51.3	47.3
7#	Kuytun Hotel	51.5	43.3	47.5	42.3
8#	Former Prefecture Architecture School	47.9	43.6	49.8	46.6
Limited value of Class 2 Area standard of Sound Environmental Quality Standard (GB3096-2008)		60	50	60	50
Result evaluation		Up-to-standard			

2. Road traffic noise monitoring

Monitoring of the completed 11 roads has been carried out, with monitoring result shown as Table 7-3:

Table 7-3 Summary of Road Traffic Noise Monitoring Result unit: dB(A)

No. of Monitoring Point	Road Name	Name of Section	Name of Monitoring Point	June 12		June 13	
				Day	Night	Day	Night
1#	S.Tuanjie Street	Beijing Road — Railway Station	Xinyuan Hotel	67.5	54.5	67.3	54.5
2#	E. Beijing Road	Manas Street — Shanshan Street	Kuytun Jinye Textile	67.2	54.7	65.4	54.2
3#	E. Urumqi Road	Manas Street — Shanshan Street	No. 4 Middle School	69.2	54.5	65.4	53.3
4#	W. Qitai Road	Tacheng Street—Tuoli Street	No. 5Primary School	56.7	49.5	62.5	45.2
5#	Tacheng Street	S. Ring Road — W. Beijing Road	Yelintao Building 31	67.1	54.2	67.6	53.7
6#	Wusu Street	S. Ring Road — Urumqi Road	Bureau of Agriculture, Forestry, Fishery and Animal Husbandry	64.3	54.1	66.2	54.2
7#	W. Urumqi Road	Tuoli Street—National Highway No.217	Distillery of Agricultural Regiment No.131	67.2	54.8	69.3	54.5
8#	Korla Road	Tacheng Street—Tuoli Street	Former Prefecture Architecture School	64.6	54.2	62.5	54.8
9#	Kashi Road	Tacheng Street—Tuoli Street	New public security bureau office building	60.4	45.5	62.4	48.7
10#	Hefeng Street	Aksu Road — Urumqi Road	Artillery Regiment	60.7	47.5	59.8	46.2

11#	Emin Street	S. Ring Road — W. Beijing Road	Meteorological Station	63.8	43.6	59.7	46.6
12	Hutubi Street	Korla Road—Urumqi Road	Vocational technical secondary school	63.6	45.2	61.6	46.8
13	Xiyi Street	West Kashi Road—West Beijing Road	Xihuayuan unified construction house	62.5	46.6	59.2	45.2
Limited value of Class 4a Area standard of Sound Environmental Quality Standard (GB3096-2008)				70	55	70	55
Result evaluation: Up-to-standard. All monitoring period of time and point meet the requirements of national standard.							

7.3 Summary of Monitoring

Through this site survey and environmental monitoring, Kuytun urban transport improvement project has been executed by adopting relevant environmental management measures according to requirements of project environmental impact report and the approval document, with the gained effect shown as Table 7-4:

Table 7-4 Summary of Environmental Management Implementation and Effect

No.	Pollution Source	Environmental Management Measures Adopted	Monitoring Description	Implementation Effect
1	Auto Gas Tail	(1) To develop gas vehicle to reduce tail gas pollution (2) To strengthen maintenance of road sections under construction and traffic management. (3) To greatly develop public transit and decrease automobile speed (4) To quicken cull-out of old vehicles (5) To formulate and perfect motor vehicle tail gas control regulations; to strengthen motor vehicle tail gas control management	NO ₂ , CO in surrounding environmental sensitive area up to Class II of Environmental Air Quality Standard(GB3095-1996)	On the premise of increase of traffic volume, degradation of environmental air quality in surrounding area not found
2	Road traffic noise	(1) To erect no tooting sign in relevant sections. (2) To prepare landscaping belts on both sides of road (3) To strengthen maintenance of road in progress and strengthen	up to Class IV area standard of Sound Environment Quality Standard (GB3096-2008)	Surrounding area up to Class II area standard of Sound Environment Quality Standard (GB3096-2008)

No.	Pollution Source	Environmental Management Measures Adopted	Monitoring Description	Implementation Effect
		traffic management		
3	Ecological environmental	(1) Landscaping: to strengthen vegetation reinstatement and road landscaping. (2) Road-related facilities: to guarantee cleanness of road-related facilities and enhance landscape harmony	Vegetation reinstatement and road landscaping have been completed.	No impact to surrounding ecological environmental

8 MONITORING CONCLUSIONS AND SUGGESTIONS

This external environment monitoring of Kuytun urban transport and environmental improvement project with ADB loan shows that in improvement and expansion of the roads completed, relevant construction contractors have basically taken the environmental management measures as proposed in the environmental impact report, contacted environmental management departments for many times, and attached sufficient importance to adverse impact to environment that may have during project implementation. According to the external environment monitoring results, corresponding measures have been taken during project implementation to minimize adverse impact to environment.

The night road traffic noise is over-standard in the last report period. During this report period, project environmental management organization keeps contract with the environmental protection bureau for supervision of project environments, and entrusts qualified supervision organization to monitor the external environments. In this report period, we mainly take the following measures and controls night road traffic noise of over-standard sections. (1) Erecting sound barrier in front of environmental sensitive points or taking other measures; regularly monitoring noise; (2) Improving traffic management, strengthening road maintenance and vehicle maintenance, strictly limiting speed and perfecting public transit management; (3) Planting tree on both sides of the over-standard sections, particularly in place near environmental sensitive points (community, school, hospital and hotel, etc); improving landscaping ratio. (4) Erecting sign of No Tooting during Class Hour near school.

The following conclusions on this external environment monitoring are drawn:

1. After taking corresponding environmental management measures, project implementation makes lower impact to atmospheric environment and sound environment of external environment and sensitive points;
2. After making remedy in this report period, it has effectively relieved the impact of over-standard voice to environments in the last report period, and

all monitoring period of time and point meet the requirements of national standard.

3. After completion of project, works have been done in time for site clearance and landscaping belt reinstatement, protecting surrounding ecological environment from damage.

4. Suggestions:

(1). Strengthening maintenance of the road constructed; strengthening traffic management; controlling vehicle at limiting speed;

(2). Formulating and perfecting motor vehicle tail gas control regulations to strengthen motor vehicle tail gas control management;

(3). Strictly controlling the violation of tooting during driving.

**Xinjiang Urban Transport and Environmental
Improvement Project
ADB Loan: 2526-PRC**

**The 3rd External Environment
Monitoring Report of Turpan
City**

**Xinjiang Turpan Prefecture Environmental Monitoring Station
November 20, 2013**

1. TASK SOURCE AND MONITORING PURPOSE

According to environmental management plan and relevant requirement in environmental impact assessment report of the project of Turpan urban transport and environmental improvement with ADB loan and in Strategic Environmental Impact Assessment (SEIA) , daily monitoring should be carried out of environmental impact factors during construction and trial operation period after completion of the project, with a view to evaluating ① whether effect of environmental protection measures meets requirements of relevant laws and regulations ; ② development trend of environmental impact ; ③ overall effect of environmental management plan of the project during construction and the trial operation period, in accordance with the target of reducing negative impact of the project, on the basis of relevant national codes and standards as well as ADB's safety policy, and according to environmental impact monitoring and data analysis. Our station, as entrusted with the task of monitoring external environment of Turpan urban transport and environmental improvement project with ADB loan, carried out site survey and site monitoring in August 3- August 10, 2013, and hereby prepared this Issue III Report for Monitoring of External Environment under the Project of Turpan Urban Transport and Environmental Improvement with ADB Loan on the basis of the survey and monitoring.

2. DESCRIPTION OF THE PROJECT

2.1 Project background

Turpan City, located at the east of Xinjiang Uygur Autonomous Region, is the political, economic and cultural center of Turpan Basin, one of important cities in Urumqi economic circle, a famous historical, cultural and tourist city, and an ecological garden city and grape city characterized by altered “urban area and farmland”. The city was a key one on ancient Silk Road, and is now the hub for south-north Xinjiang land transport and transit, with Lanzhou-Xinjiang Railway, National Highway No.312 and Turpan-Urumqi-Dahuangshan Expressway passing through from the east to the west, and South Xinjiang Railway and National Highway No.314 going across from the south to the north, to initially form the two-transversal and two-longitudinal lattice structure transport network and further enhance its striking strategic position in transport. However, with further urban development, the city's infrastructure has lagged behind badly and become failed to meet the needs of current development. Main problems in the field are: due to limitation of financial resources, the roads are characterized by low-standard structure design, poor subgrade bearing capacity and low-standard pavement design and rough construction, which lead to insufficient surface asphalt thickness on main roads, uneven pavement and bad vehicle driving conditions, seriously influencing road traffic capacity; pavement damage, serious ageing, incomplete road function, and insufficient traffic capacity with some externally radiating roads in urban area, restricting its linkage with other places; shortage of auxiliary facilities such as road lightings, landscapings, parking lot and traffic. Therefore, works must be done to newly construct and improve some roads, and lift current road traffic environment and residents' living environment, so as to make them concerted with urban construction and development.

2.2 Construction scale and description

The project construction mainly consists of road works, including construction of 12 urban roads and improvement of some lanes, including 3

roads (W. Wenhua Road, E. Ring Road and Yucai Road) in old town area, with total length of 3.1km; 9 roads (Huoyanshan Road, Sichou Road, Lvzhou Road, Chanyeyuan Road, New Gaochang Road, New Munar Road, New Xingfu Road, New Guangming Road and New Bezkelik Road) in new town area, with total length of 18.7km. This project will involve improvement of roads with total length of 21.8km and total area of 650,800 m² and construction of corresponding auxiliary facilities.

2.3 Organization

This project has the organization chart as follows:

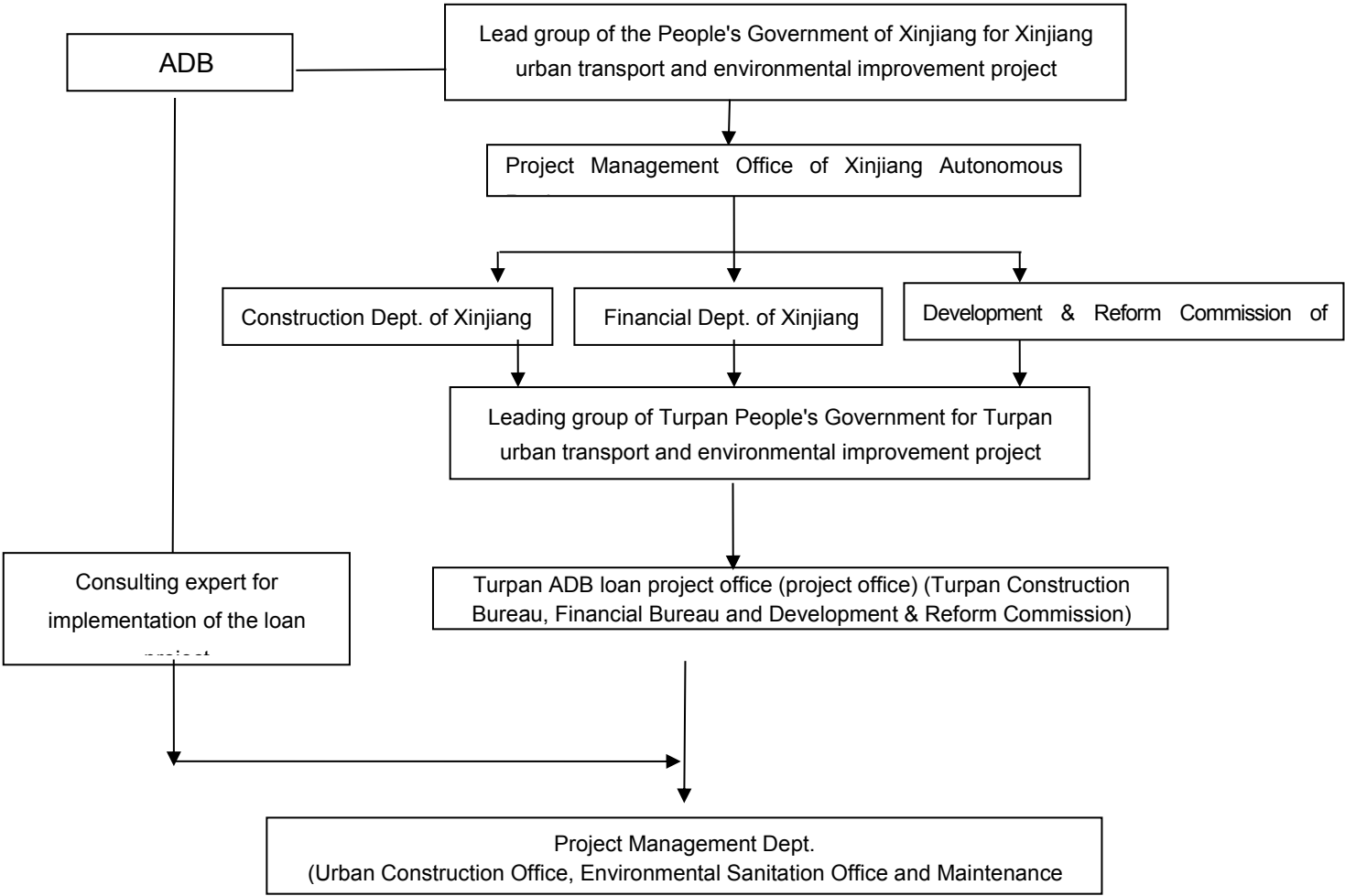


Fig. 2-1 ADB Loan Project Organization Chart

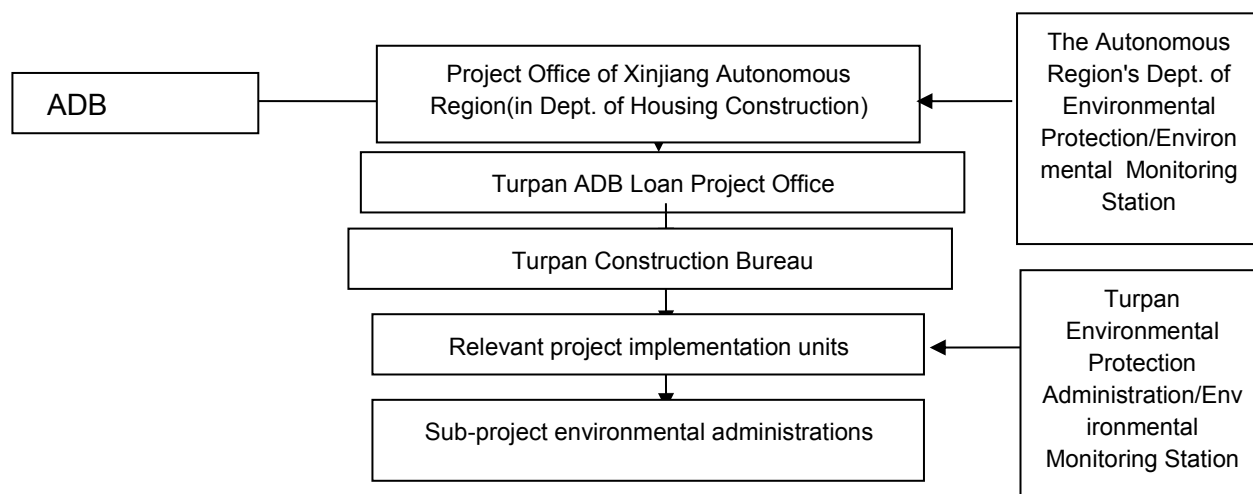


Fig. 2-2 Organization chart for environmental management

2.4 Project progress

Project progress by the end of November 2013 is shown as following

Table 2-1.

Table 2-1 Project Construction Progress

No.	Name of Road	Implementation Time	Progress by the End of November 2013	Stage	Investment Completed (ten thousand yuan)	Schedule at the end of June, 2014
1	Lvzhou Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	585	Have been all completed
2	Huoyanshan Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	1570	Have been all completed
3	New Guangming Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	960	Have been all completed
4	New Gaochang Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street	Operational period	1280	Have been all completed

			lamps and other affiliated facilities has been completed			
5	Chanyeyuan Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	760	Have been all completed
6	Sichou Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	1150	Have been all completed
7	New Xingfu Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	998	Have been all completed
8	New Munar Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	735	Have been all completed
9	New Bezekelik Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	378	Have been all completed
10	E. Ring Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	590	Have been all completed
11	Yucai Road	April 2011	Main traffic lane asphalt pavement completed, and opened for traffic; Sidewalks, green belts, street lamps and other affiliated facilities has been completed	Operational period	110	Have been all completed
12	W. Wenhua Road	April 2011	Demolition not completed, works not started	Tender completed	0	Have been all completed

3. Environmental Management Measures

3.1 Purpose of environmental management

Carrying out project management of sub-projects under this project to prevent environmental pollution during construction period and operation period, minimize negative impact to environment during implementation of the project, and finally achieve the goal of urban environment improvement of Turpan City.

3.2 Implementation of environmental management measures

3.2.1 Environmental management during construction period

Table 3-1 Environmental Management Measures During Construction Period

Environmental Problem	Environmental Management Measures During Construction Period
Dust/air pollution	1) Spray water as necessary during construction period, at least twice a day; meeting more residential areas around construction site, spraying frequency should be higher(mainly in lane construction). During subgrade filling, it will be needed to spray so as to compact materials; after the materials are compacted, spray water regularly to control dust.
	2) Powder raw materials such as cement and lime pile should be covered with awnings. In main transportation road into and out of sand and stone yards and construction site, sprayer should be prepared to spray water regularly and at fixed time, so as to reduce dust from handling and transportation of sand and stone.
	3) During construction, subgrade should be compacted layer by layer, and attention should be paid to spraying for dust control. Pipeline laying should be constructed section by section as far as possible. After completion, pipeline trench should be buried in time, so as to resume traffic service as soon as possible, avoid traffic jam and prevent dust from excavation.
Construction camp	1) Sufficient measures should be taken in construction camp, such as providing dustbins and sanitary treatment facilities and removing toilet wastes regularly.
	2) Rubbish should be collected in dustbins in fixed places and removed regularly.
Noise	1) Strictly execute industrial enterprise noise standard, so as to protect construction workers from noise hurt. Workers near high noise source should be given proper protection, and their working hours should be limited.
	2) For construction near residential area, high-noise construction will be prohibited; Machinery that is fixable should be placed far away from residential area.
	3) Strengthen maintenance of machinery and vehicle, to make them keep lower noise.
Ecological environment	1) Reduce excavation and backfilling as far as possible.
	2) Strengthen training of construction workers about environmental protection; works should be done to strictly prohibit waste discharge and vegetation damage.

Water and soil loss	1)Strengthen subgrade protection, and construct road drainage works.
	2)After spoil is placed, the site should be leveled to reinstate vegetation in time.
Accident risk	1) In order to guarantee construction safety, provisional lighting equipment and safety signal device should be erected along the road during construction period.
	2) Take effective safety and warning measures to reduce accident.
Traffic and transportation	1) Make use of local construction materials as far as possible, so as to avoid long-distance transportation of construction materials, particularly earth and stone.
	2) Take sufficient traffic guide measures after consultation with traffic and public security departments when meeting traffic jam during construction period.
	3) Prepare relevant materials in advance during seasons with less traffic jam.

3.2.2 Environmental management during operation period

Table 3-2 Environmental Management Measures During Operation

Period	
Environmental Problem	Environmental Management Measures During Operation Period
Transportation management	1)Transportation of toxic and harmful chemicals should be subject to three licenses as issued by transport department — transportation permit, driver's license and escorting permit. All vehicles for transportation of hazardous articles should be marked with uniform signs as stipulated by the Ministry of Communications. 2)Public security and transportation management authorities and fire-control department shall specify special transportation route for vehicles transporting hazardous articles, and vehicle with hazardous articles can only stop in the specified parking lot.
Vehicle management	1)Strengthen vehicle management, and vehicles on the road must conform to national auto tail gas emission standard, and be subject to annual check and regular check. 2)Strengthen education of the public of vehicle air pollution, noise and relevant laws and regulations.
Road maintenance	1)Strengthen road maintenance to guarantee normal driving of vehicles, reduce auto tail gas and noise emission and avoid traffic jam. 2)Reasonably arrange for pavement maintenance time to avoid construction during rush hour.
Noise	According to monitoring results to erect noise shield or carry out traffic control in areas with over-standard noise.
Drainage system maintenance	Regularly desilt drainage system, so as to guarantee normal service of drainage system.
Environmental supervision	1) Arrange for full-time members for road cleanness, to remove surface barriers in time and guarantee traffic safety, which is under the responsibility of the city's environmental sanitation team. 2)Regularly maintain and check road sign, warning board and lighting system, to guarantee smooth driving. 3)Protect greening belt; take measures to keep trees in isolation belt and sidewalk growing properly; landscaping plants should keep graceful shape, evergreen and luxuriant, which is under responsibility of the Garden Administration Office.

4. Goal of Environmental Protection:

According to the environment sensitive goal as specified in ADB's Xinjiang urban transport and environment improvement project —— Turpan Prefecture environment impact report, and on the basis of actual construction progress (except for Yucai Road, Huoyanshan Road and E. Ring Road having been opened for operation, the other nine roads (of which eight roads are open to traffic and one has not been removed yet) do not involve in environmental sensitive point),our station has carried out actual site survey and environmental monitoring of the two road(Yucai Road and Huoyanshan Road) in operation period under the project, with implementation of relevant environmental protections is shown as following Table 4-1:

S. No.	Environmenta l Factor	Environmental Protection Goal	Environmental Function
1	Atmospheric environment	Binhu Housing Estate	Environment Air Quality Standard(GB3095-1996)Class II
		Regiment No.32	
		Putao Township	
2	Sound environment	Huoyanshan Road	Class 1 Area standard of Sound Environmental Quality Standard (GB3096-2008)
		Yucai Road	
		E.Ring Road	

5. Specific Contents of this Environmental Monitoring:

All roads for construction are in urban area and near suburb. Site survey shows that the project construction does not involve natural reserves and scenic spot, but involves the noise and atmospheric environmental sensitive points arranged on both sides of the roads.

According to project-influenced area's environmental characteristics and project's environmental impact features, this project plans to have necessary environmental monitoring carried out only in the construction period and operation period.

5.1 Description of the environmental monitoring in this project:

1. Specific point and time for monitoring in operation period should be determined according to the project's actual progress, site items and relevant route.

2. Monitoring points should be mainly placed in more sensitive areas such as residential area and school.

5.1.1 Atmospheric environment monitoring

Monitoring item: TSP, NO₂, CO.

Monitoring point: Binhu Housing Estate, Regiment No. 32 and Putao Township

Monitoring period: August 3—August 10, 2013, for three days continuously; TSP sampling time no less than 12h per day, NO₂ sampling time no less than 18h per day; at least 45 min per hour for sampling; CO sampling time no less than 18h per day; at least 45 min per hour for sampling;

5.1.2 Noise environment monitoring

Monitoring item: equivalent sound level A (Leq).

Monitoring point: residential area noise environment sensitive point near Yucai Road, Huoyanshan Road and E. Ring Road.

Monitoring period: August 3, 2013 once per day (18:30) and per night (23:30), for one day in total.

Monitoring method and evaluation standard:

According to relevant national technical specifications and contents of ADB Xinjiang urban transport and environment improvement project — Turpan Prefecture environment impact report, analysis method and evaluation standard for this environmental monitoring are shown as Table 5-1.

Table 5-1 Summary of Monitoring Analysis Method and Evaluation Standard

Environmental Factor	Sampling and Analysis Method	Evaluation Standard
Atmospheric	Determination of Total Suspended Particulates in Environmental Air, gravimetric method. (GB/T15432—1995).	Environment Air Quality Standard(GB3095-1996)Class II
	(HJ479-2009)Determination of Nitrogen Dioxide in Environmental Air)-(1-naphthyl)ethylene diamine dihydrochloride spectrophotometric method	
	(GB9801-1988)Air quality--Determination of Carbon monoxide--Non- disperisive Infrared Spectrometry	
Noise	Sound Environment Quality Standard (GB3096-2008)	Class 2 Area standard and Class 4a Area standard of Sound Environmental Quality Standard (GB3096-2008)

5.2 Environmental monitoring results and evaluation

5.2.1 Atmospheric environment monitoring results

Results of atmospheric monitoring during operation period is shown as Table 5-2:

Table 5-2 Summary of Atmospheric Monitoring Results Unit:mg/m³

Monitoring Point	Monitoring Date	TSP	NO2	CO
In Binhu Housing Estate	2013.08.03	0.186	0.6	0.022
	2013.08.04	0.192	0.7	0.033
	2013.08.05	0.210	0.5	0.049
	2013.08.06	0.258	0.6	0.043

	2013.08.07	0.126	0.8	0.030
	2013.08.08	0.140	0.8	0.023
	2013.08.09	0.165	0.7	0.030
In Regiment No.32	2013.08.03	0.119	0.5	0.019
	2013.08.04	0.162	0.4	0.023
	2013.08.05	0.194	0.6	0.024
	2013.08.06	0.187	0.5	0.026
	2013.08.07	0.203	0.5	0.020
	2013.08.08	0.220	0.6	0.025
	2013.08.09	0.215	0.7	0.029
In Putao Township	2013.08.03	0.153	0.5	0.022
	2013.08.04	0.159	0.6	0.026
	2013.08.05	0.181	0.6	0.025
	2013.08.06	0.216	0.8	0.020
	2013.08.07	0.205	0.5	0.024
	2013.08.08	0.176	0.8	0.018
	2013.08.09	0.184	0.7	0.025
Class II limited value in Environment Air Quality Standard(GB3095-1996)		0.30	4.00	0.10

According to the monitoring results in the above summary, daily average of TSP, NO₂, CO with atmospheric environmental sensitive points near Yucai Road, Huoyanshan Road and E.Ring Road during operation period conform to Class II standard Environmental Air Quality Standard(GB3095-1996), and no over-standard value is found.

5.2.2 Noise environment monitoring results

This noise monitoring has been carried out day and night at noise environmental sensitive points with Yucai Road, Huoyanshan Road and E.Ring Road during operation, with monitoring results shown as Table 5-3:

Table 5-3 Summary of Noise Environmental Monitoring Results
Unit :dB(A)

Monitoring Point	Description	Noise Monitoring Value	
		Day	Night
▲1#	Huoyanshan Road	62.5	53.9
▲3#	Yucai Road	65.1	60.3
▲5#	E.Ring Road	57.9	53.6
Class 4a Area standard of Sound Environmental Quality Standard (GB3096-2008)		70	55

Monitoring Point	Description	Noise Monitoring Value	
		Day	Night
△2#	Sensitive point of Huoyanshan Road	43.5	42.1

△4#	Binhu Housing Estate	53.2	51.4
△6#	Sensitive point of E. Ring Road	50.5	49.1
Class 2 Area standard of Sound Environmental Quality Standard (GB3096-2008)		60	50

According to the current environmental noise monitoring results, it can be found that the daytime noise at the monitoring points near the Yucai Road, Huoyanshan Road and E. Ring Road reached the relevant provision of "Sound Environmental Quality Standard " (GB3096-2008). The traffic noise at the East Loop Road, and nocturnal noise at the sensitive points of Huoyanshan Road reached the related regulation of "Sound Environmental Quality Standard " (GB3096-2008). At night the noise of the Huoyanshan Road and Yucai Road did not achieve the stipulation of Class '4a' area Standard of "Sound Environmental Quality Standard" (GB3096-2008) (exceeded by 3.7-7.9dB); the nighttime noise in Binhu Housing Estate did not meet the Class 2 Area standard of " Sound Environmental Quality Standard " (GB3096-2008) (exceed by 4.7dB).

6. Monitoring Conclusions and Suggestions

6.1 Conclusion

Results of this external environment monitoring under ADB Xinjiang urban transport and environment improvement project — Turpan Yucai Road, Huoyanshan Road and E. Ring Road during operation period the air environment conform to the limited value as specified by relevant national standard. The nighttime noise of Yucai Road, Huoyanshan Road and Binhu Housing Estate exceed the standard, and the daytime and night time noise of other roads and sensitive points meet the relevant National Standard.

6.2 Suggestions

(1). In view of the seasonal nighttime noise exceeding the standard which observed this time in some road sections and residential community, some suggestions are proposed as follows:

I. Reduce the noise of vehicles, establish and improve the traffic management system. Monitor the motor vehicle noise regularly, conduct a compulsory maintenance to vehicles that exceeding the noise standard. Only those vehicles with noise meeting standard shall be allowed going on the road, and those with large noise shall be phasing out.

II. Strictly restrict the vehicle speed, especially those speeding at night; At the environmental sensitive points along the roads of this project, vehicles are banned to ring big horn loudly at night that disturbs the normal rest of residence, and shall reduce speed to avoid traffic accidents; regularly maintain and repair the noise insulation facilities on both sides of roads, and carry out a good pavement maintenance. Timely repair and recover the damaged road surface; strengthen the greening along both sides of roads, especially the acoustic environment sensitive points at schools and hospitals etc.

III. Strengthen the public education and management, reduce as far as possible the nuisance to residence by seasonal social life noise that exceeding the standards.

V. Regularly monitor the road sections that exceeding the acoustic standard, and the noise sensitive points at residential areas. If found that the noise exceeds standard, the necessary precautions(e.g. 'forbid horn' etc.) shall be taken to avoid the disturbance to residential life from external noise.

(2). Proper traffic safety precautions should be taken during operation period; signboards should be erected with the environmental sensitive points along the roads, to strictly prohibit vehicles transporting chemical hazardous articles from parking near by, and eye-catching signboards or warning boards indicating first-aid telephone number, etc should be erected in sections with frequent accidents, so as to avoid traffic accident and help accident treatment as far as possible.

(3). During road operation, vegetation reinstatement should be continued, and vegetation landscaping should be carried out in urban and township road sections along the route. Works should be done to clear and level traffic short-cut, workers' camp, material yards and borrow and spoil places, for better vegetation reinstatement.

亚洲开发银行贷款
新疆城市交通和环境改善项目
贷款号：2526-PRC

环境监测报告
(第三期)

2014 年 1 月

亚洲开发银行贷款
新疆城市交通和环境改善项目
贷款号：2526-PRC

阿勒泰市外部环境监测报告
(第三期)

2014 年 1 月

内容提要

本半年度环境监测报告（EMR）内容覆盖了新疆城市交通和环境改善项目 - 阿尔泰子项目，从 2013 年 1 月到 12 月底，针对中文环境影响评估报告（EIA）和亚行环境影响评估摘要（SEIA）中要求在施工和运营期间实施环境监测和缓解措施承诺的落实情况。

报告主要章节包括：（i）背景简介；（ii）环境组织机构和职责；（iii）已经采取减少因施工/运营对周围环境不利影响缓解措施情况；（iv）环境监测和环境质量状况；（v）公众咨询和申诉情况；（vi）机构加强和培训；（vii）文件审查和环境法规、贷款约定遵守情况；以及（viii）结论和建议。

截至 2013 年 12 月，阿勒泰子项目总体估计已经完成 99%。在本报告期内，对废水处理，空气和噪音控制等予以足够重视，缓解措施和监测计划执行情况基本令人满意。通过这些措施的实施，在施工和运营期间对环境可能的破坏已经被降低到最低水平。

2013 年 7 月对子项目附近环境敏感点的大气和噪声水平进行了定期监测。结果显示，所有环境敏感点空气、声环境质量均符合适用的国家环境质量标准。

然而，在一定程度上仍存在不可避免的对环境的影响。兹提出建议，以期改进下一阶段环境保护工作。

I. 背景简介

A. 项目背景

1. 根据亚行贷款新疆阿勒泰市城市交通及环境改善项目环境影响评价报告书（EIA）和亚行批准的环评摘要（SEIA）的相关要求，需要针对工程建设期间和项目建成运营期间项目活动进行日常监测评估，并编制环境监测报告，以确保环境管理计划（EMP）有效实施。第一期（2011年）外部环境监测报告于2012年6月在亚行网站公示，第二期（2012年）外部环境监测报告于2013年3月在亚行网站公示。
2. 本报告是由阿勒泰市亚行贷款城市交通和环境改善项目管理办公室(Altay PMO)准备，由阿勒泰地区环境监测站(Altay EMS)作为外部环境监测机构提供技术协助。监测计划已经根据项目实际进度更新。本报告编制目的是记录截止2013年底环境管理活动，及环境管理计划（EMP）遵守情况。本报告是根据环境管理计划（EMP）中环境监测计划编制的。作为第二期环境监测报告，它不仅将覆盖施工阶段，也包括运营阶段，以证实符合环境管理计划的要求。为减少项目对环境的负面影响，根据中国所有相关的规范和标准，以及亚洲开发银行（ADB）的政策目标，本报告将强调：（i）环境管理计划落实进度；（ii）实施缓解措施；（iii）贷款环境约文遵守情况，（iv）环境监测合规情况；（v）机构加强和培训，（vi）公众咨询，及（vii）可能出现的问题及纠正行动。
3. 亚行贷款新疆城市交通和环境改善项目旨在改善阿勒泰、昌吉、哈密、奎屯和吐鲁番5个城市的道路和环卫基础设施建设，提高交通管理和安全水平。通过新建和改建项目点的道路和环卫设施，本项目将致力于提高居民的生活质量和健康水平，并对环境进行保护。本项目将（1）建设37.4公里的道路，并对已有70.5公里的道路进行改造；（2）安装交通信号系统、公交站、停车场和道路设施，如路障、人行横道、路牌和指示牌、绿化隔离带等；（3）建设并安装环卫设施，如公厕、垃圾收集站、垃圾箱和街道清扫车等。
4. 阿勒泰地区地处新疆最北端，与蒙古、俄罗斯、哈萨克斯坦三国交界，从地理位置上看具有得天独厚的区位优势，因此阿勒泰市在中国发展中亚区域合作中具有不可取代的重要地位。阿勒泰地理条件绝佳，对外通道很便捷。在国际经贸发展中，阿勒泰地区占据了优越的地理位置，已经成为我国向西开放的前沿。国务院已批准开放的四个口岸都位于阿勒泰，即对蒙古的第二大口岸塔克什肯口岸、红山嘴口岸，对哈萨克斯坦的吉木乃、阿黑吐别克口岸。作为地区的中心，阿勒泰市具有对外开放、发展边境贸易和国际技术经济合作地地缘优势。在国家西部大开发的政策和良好的投资大环境下，抓住机遇，加快阿勒泰市环境基础设施建设，通过基础设施建设，扩大对外开放、开发优势资源、发展地方经济、改善人民生活，成为阿勒泰政府的必然选择。随着新疆对西开放战略的实施，阿勒泰市已成为中国西部最大的沿边开放城市之一。城市经济持续增长，但是与之相适应的城市基础设施建设却严重滞后，不能满足城市发展的需要。要加快阿勒泰市的经济发展，首先就要加快阿勒泰市基础设施的建设步伐。阿勒泰市将按照“建设中等城市”的目标，完善城市综合服务功能，提高城市形象品位，夯实城市形象基础，创造良好的社会经济发展空间和和谐的人居环境，实现城市经济效益、社会效益和环境效益的协调统一发展。

5. 阿勒泰市城市道路路网目前存在以下问题：(i) 老城区路网大部分为未经过系统规划而自然形成的道路，目前还没有形成通畅的干道环路系统。岔路、丁字路、断头路较多，道路间距不合理。(ii) 现状道路仍有不少砂土路面，道路硬化率低，不利于城市市容环境的改善。(iii) 道路横断面布置不合理，缺乏交通设施，功能不明确，造成交通混乱。(iv) 部分道路路面标高高于沿路两侧地标高，不利于临街建筑立面布置及沿路范围两侧街坊内地面水的排除。(v) 以前建成的道路由于受财力的限制，结构设计标准低，路基承载能力差，路面设计标准低，严重影响道路的通行能力，应付病害能力差，导致路面破损、老化现象严重。(vi) 道路照明、绿化、停车场、交通设施等附属设施匮乏，市政管线设施不配套。

B. 子项目简介

6. 本子项目位处正在快速增长的城市阿勒泰，旨在：(i) 改善城市道路基础设施和实现批准的城市总体规划及“十一五”计划（2006-2010）中的环境目标；(ii) 促进获得环境卫生设施，并使其正常运营；(iii) 改善空气质量和减少表面路况差所造成的粉尘污染；(iv) 改善道路安全和减少交通延误，(v) 通过环境卫生基础设施建设和提供环卫设备，改善环境卫生和公共卫生；(vi) 在城市中心地段和不断扩大的城市地区引入环境管理；和 (vii) 刺激经济增长和改善贫困人口的福利。
7. **子项目内容。**新疆阿勒泰市城市交通及环境改善项目包括阿勒泰市城区内19条道路的道路工程和相应的道路绿化、道路照明等道路附属工程，以及道路养护设备和环卫工程。19条道路总长28.02公里，包括：3条新建道路，10条扩建道路，6条改建道路，新建5座桥梁。项目建设内容主要包括道路的路面工程、路基工程、附属配套工程、城市绿化等工程建设内容，建设内容详见表1.1。

表 1.1 阿勒泰市项目工程建设内容一览表

项目	建设内容	
道路工程	新建道路	新建道路 3 条，总长 1590.35 米。包括环城西路、桥东路和团结南路。
	扩建道路	扩建道路 10 条，总长 16986.68 米。包括红墩路、园艺场路、解放北路、东后街、北二路、览景路、东后街路、1~10 支路、前进街和滨河路。
	改建道路	改建道路 6 条总长 9443.32 米，不建设车行道，只建设人行道、绿化带、照明以及附属设施，包括：公园路、金山路、金山北路、文化路、团结南路和团结北路（只建设人行道）。
道路附属工程	道路桥梁	桥梁 5 座总长 281 米：红墩路与银水路交叉口处 1 座，北二路与环城西路交叉口附近 2 座，览景路体育场附近 1 座和公园路 1 座。
	环卫工程	道路附属工程新建公厕 10 座，垃圾收集房 20 座，果皮箱 844 个，垃圾筒 111 个，垃圾压缩车 1 辆，清扫车 1 辆，清雪车 2 辆。

C. 实施进展

8. 下表1.2和表1.3显示截止2013年12月，最新的子项目进展情况及所有合同实施进展情况。

表 1.2 阿勒泰子项目实施进展情况汇总
(截止 2013 年 12 月)

子项目	成本估算	完成内容	计划完成 (%)	本次报告期 实际完成 (%)	2014 年计划安排
亚行贷款 阿勒泰市 城市交通 与环境改 善项目	25,543 万 元人民币	道路、桥梁、环卫及 道路养护设备、街道 照明、人行道建设	90%	98%	整个子项目投入运营

表 1.3 阿勒泰子项目合同包实施实施进度一览表
(截止 2013 年 12 月)

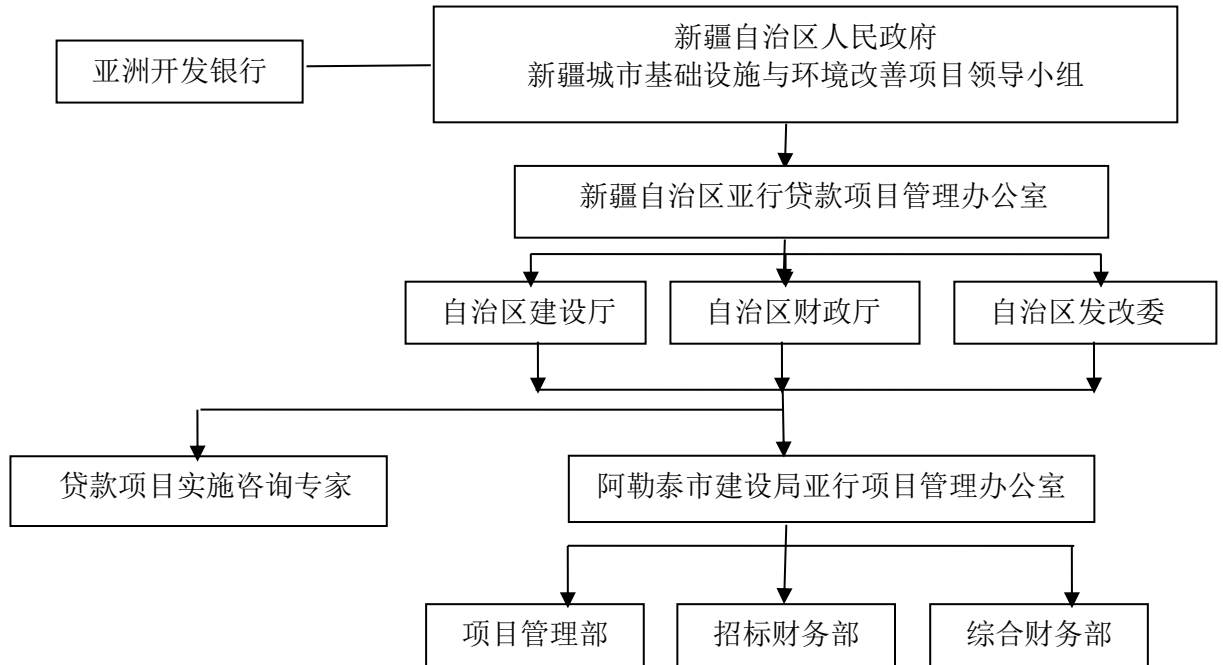
序号	合同包号	内容	开工-交工时间	完工进度 (%)
1	A1 包	公园路、金山路、金山北路、文化路、团结路、团结北路土建工程和照明设施	2011.4 -2013.6	目前已完成总量 100%
2	A2 包	110 支路、前进街、园艺场路、北二路、环城西路、桥东路土建工程和照明设施	2010.8 -2014.5	94%
3	A3 包	红墩路、团结南路、解放北路、东后街、东后街路土建工程和照明设施	2010.8 -2014.5	94%
4	A4 包	滨河路、览景路和其他附属设施	2010.7 -2013.6	100%
5	A5 包	桥梁和其他附属设施	2010.8 -2013.6 正在施工中	100%
6	B1 包	街道照明	2011.8 -2013.6 供货安装	100%
7	B2 包	道路维护及环卫设施	2011 年 8 月-2013.6 供货	100%
8	D2 包	公共厕所	2012.4-2012.8	100%

II. 环境职责及机构

A. 环境管理与监督机构和职责

9. 阿勒泰子项目管理组织机构图见下图 2.1:

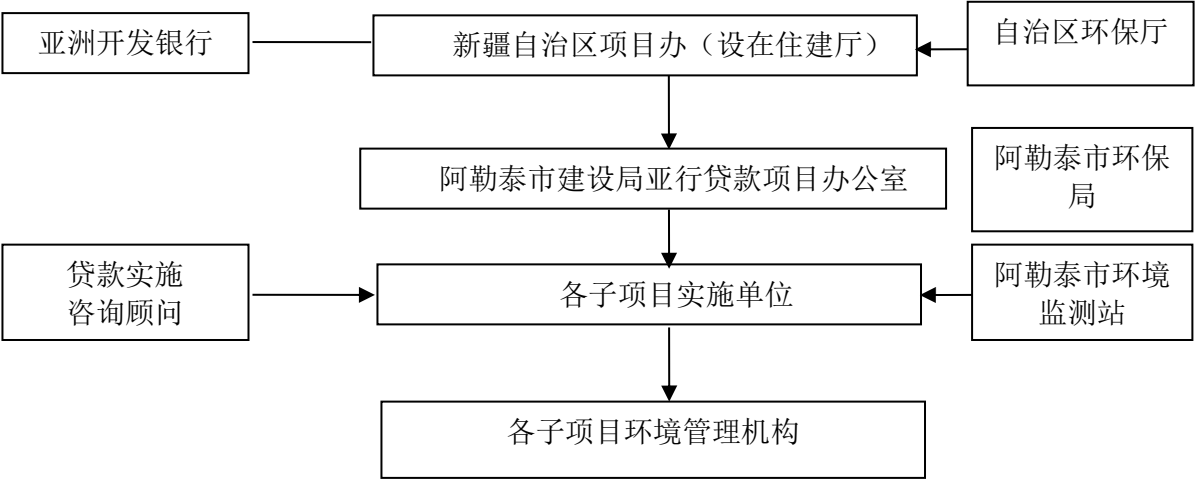
图 2.1 阿勒泰子项目管理组织机构图



10. 阿勒泰市建设局是阿勒泰城市交通和环境改善子项目的实施机构，负责阿勒泰城市基础设施项目从规划，设计到实施的全面管理。阿勒泰建设局向阿勒泰项目办负责。阿勒泰市市政养护公司将负责道路与街路照明设施运营和维护;阿勒泰市园林绿化管理部门将负责街道景观维护;阿勒泰市环境卫生站将负责环卫设施运营和维护。
11. 阿勒泰子项目实施前已经建立了环境管理体系，包括实施、检查、监测、报告和采取纠正行动或措施。在设计阶段，阿勒泰子项目办和实施机构向设计单位提供了环境管理计划（EMP），以将缓解措施整合进子项目的详细设计中。详细设计结束时对环境管理计划进行了审查、确认，并最终纳入签署的土建工程合同中。为了确保承包商遵守环境管理计划（EMP）的要求，阿勒泰子项目办和实施机构准备和提供了以下规范条款以纳入招标程序：（i）投标人在其投标书中应编列预算的环保项目清单;和（ii）合同条件和技术规范的环境条款。（请参阅本章B部分）
12. 实施机构在项目实施前成立了环境管理机构。环境管理机构职责覆盖环境管理计划（EMP）实施的协调和监督。环境管理机构由实施机构副职负责人牵头负责。实施机构也招募/安排了环保人员作为联络点以处理申诉。同时，阿勒泰市环境保护局负责监督环境管理体系的日常运作。

13. 阿勒泰子项目环境管理组织机构图见下图 2.2:

图 2.2 阿勒泰子项目环境管理组织机构图



B. 环境要求合同安排

14. 据悉，环境方面的考虑已纳入设计、招投标文件和土建工程合同中，以确保环境友好采购。施工期间所有缓解措施的费用已涵盖在已经发布的招标文件和签订合同中。环境管理计划（EMP）也被作为签订合同的附件。
15. 所有的土建工程合同中包含对工人和社区，环保，物质及文物遗产保护的条款。环境条款摘要在下表2.1。

表 2.1 土建合同中的环境条款

主题	签署合同中的环境条款
I. 工人及社区安全	<ul style="list-style-type: none"> ● 翻译略（.....） ● 翻译略（.....）
II. 环境保护	<ul style="list-style-type: none"> ● 翻译略（.....） ● 翻译略（.....）
III. 物质及文化遗产	<ul style="list-style-type: none"> ● 翻译略（.....）

III. 环境影响缓解措施实施情况

16. 在2012年10月中期考察期间，阿勒泰子项目有一些微小调整。其中增加1座桥梁，减少1条新建道路（团结南路，0.68公里），红墩路部分路段（2.3公里）；增加4辆摆臂式垃圾收集车、1台挖掘机、3台轮式装载机、3辆自卸翻斗车、1辆高空作业车、2台压路机、1台洒水喷药车、3台平地机、4辆道路巡检车和1台沥青混合料拌合设备，减少154个果皮箱、20座垃圾收集站、1辆扫雪车和1辆后装式垃圾车、4个公共厕所。以上调整被确定为微小变化。因此不需要对环境管理计划（EMP），包括缓解措施和环境监测计划进行更新。
17. 环评摘要（SEIA）环境管理计划（EMP）中建议的缓解措施实施情况如下表 3.1 最右边一列。总体上缓解措施迄今已得到有效执行。

表 3.1 环境缓解措施实施情况摘要表（翻译略）

IV. 环境监测摘要

A. 环境监测职责

18. 根据新疆城市交通和环境改善项目环境管理计划（EMP），阿勒泰地区环境监测站受阿勒泰项目办聘请，对项目建设和运营期主要环境影响因素（如NO₂,PM₁₀,CO和噪声）进行外部环境监测。施工监理公司负责监督承包商按照环境管理计划（EMP）实施缓解措施。阿勒泰项目管理办公室（市建设局）负责监督整个环境监测工作。而贷款实施环境顾问提供技术指导和援助。

B. 内部监测和报告

19. 施工期间，施工监理公司每天至少对工地进行一次现场检查。如发现不合规情况，及时提出纠正措施。施工阶段详细的内部环境监测方案和缓解措施的结果通过地方环保局和子项目办每月提交至新疆项目办和新疆环保厅。承包商及监理内部监测结果已在施工周报中反映。阿勒泰市子项目办在项目贷款实施咨询专家的协助下，监督及评估设计监测框架（DMF）中整体项目活动情况，也包括其中的环保目标。新疆项目办在已提交亚行的进度报告中反映了项目实施及承包商、实施机构和环境监测机构的环境绩效信息。在这些进展报告中，环境缓解措施和环境监测的执行情况已列入。

C. 环境质量目标、取样及分析方法

20. 根据新疆城市交通和环境改善项目环境管理计划（EMP），对阿勒泰子项目运营期间环境影响因素（如NO₂,PM₁₀,CO和噪声）进行了外部环境监测。环境监测相关的主要环保目标如下表4.1:

表 4.1 阿勒泰子项目环境保护目标一览表

环境要素	所在路段	序号	环境保护目标	适用环境标准
大气	桥东路	1	克兰河度假村	GB3095-1996 二级
	团结南路	2	新疆阿勒泰畜牧兽医职业学校	GB3095-1996 二级
	金山北路	3	阿勒泰地区第一高级中学	GB3095-1996 二级
	金山南路	4	阿勒泰地区第三高级中学	GB3095-1996 二级
	公园路	5	驼峰风景区	GB3095-1996 一级
		6	阿勒泰地区卫生学校	GB3095-1996 二级
		7	幼儿园	GB3095-1996 二级
	团结路	8	协和医院	GB3095-1996 二级
	文化路	9	阿勒泰市一中	GB3095-1996 二级
	红墩路	10	阿勒泰地区职业学校	GB3095-1996 二级
	北二路	13	清真寺	GB3095-1996 二级
	北二路中段	14	少数民族坟地	GB3095-1996 二级
	北二路	15	阿勒泰市三中	GB3095-1996 二级
	园艺场路	16	清真寺	GB3095-1996 二级
噪声	桥东路	1	克兰河度假村	GB3096-2008 1类
	团结南路	2	新疆阿勒泰畜牧兽医职业学校	GB3096-2008 2类
	金山北路	3	阿勒泰地区第一高级中学	GB3096-2008 2类

环境要素	所在路段	序号	环境保护目标	适用环境标准
	金山南路	4	阿勒泰地区第三高级中学	GB3096-2008 2类
	公园路	5	驼峰风景区	GB3096-2008 1类
		6	阿勒泰地区卫生学校	GB3096-2008 2类
		7	幼儿园	GB3096-2008 2类
	团结路	8	协和医院	GB3096-2008 2类
	文化路	9	阿勒泰市一中	GB3096-2008 2类
	红墩路	10	阿勒泰地区职业学校	GB3096-2008 2类
	北二路	13	清真寺	GB3096-2008 2类
	北二路中段	14	少数民族坟地	GB3096-2008 1类
	北二路	15	阿勒泰市三中	GB3096-2008 2类
	园艺场路	16	清真寺	GB3096-2008 2类

21. 标准采样和分析方法及评价标准：表4.2显示了每个监测参数的监测方法标准，检测限和适用的标准。

表 4.2 标准分析方法及评估标准

环境要素	监测项目	取样分析方法 (标准号)	检测限	适用评估标准		标准值	
大气	NO ₂ (mg/m ³)	环境空气 氮氧化物（一氧化氮和二氧化氮）的测定 盐酸萘乙二胺分光光度法 (HJ 479—2009)	0.005	环境空气 质量标准 (GB3095-1996)	一级	0.08	
					二级	0.12	
	PM ₁₀ (mg/m3)	PM ₁₀ 采样器技术要求及检测方法(HJ/T 93-2003); 环境空气 PM ₁₀ 和PM _{2.5} 的测定 重量法（HJ618-2011）	0.01		一级	0.05	
					二级	0.15	
	CO (mg/m3)	空气质量 一氧化碳的测定 非分散红外法（GB 9801-88）	0.3		一、二级	4	
噪声	等效连续A声级 (Leq, dB(A))	声环境质量标准 (GB3096-2008)	0.5	声环境质量标准 (GB3096-2008)	1类	白天60	夜间50
					2类	白天55	夜间45

D. 监测计划及安排

22. 根据新疆阿勒泰市城市交通及环境改善项目环境影响报告书及环评摘要中确定的环境敏感目标与项目施工/运营期间可能产生的主要环境影响，结合实际进度，阿勒泰环境监测站对目前实施的阿勒泰市城市环境改善项目进行了实地现场调研与环境监测。本子项目第二次外部环境监测实施的环境监测工作内容如下：1) 实施监测的具体点位与时间根据项目的实际施工进度、现场施工内容和路线确定。2) 监测点位重点放在较为敏感的地段如居民区、学校等。在覆盖环境影响报告书中提及的保护目标的同时，结合施工地点的人口密度、施工内容、工地范围、施工进度等情况，选择具有代表性的工地布设监测点位。3) 监测的同时简要记录当时主要施工单位名称、主要施工内容、施工主要作息时间、主要施工设备等内容。由于目前阿勒泰子项目大部分路段都已经开放交通，本次监测将主要关注运营期环境影响，而不仅仅是施工期。

空气监测计划

23. 运营期监测计划如下：

- 监测项目：NO₂, PM₁₀, CO
- 监测布点：桥东路、团结南路、金山北路、金山南路、公园路、团结路、文化路、红墩路、北二路、北二路中段、北二路、园艺场路附近大气环境敏感点。
- 监测时段：2013年7月3日-4日，连续监测2天，NO₂采样时间每天不少于18h，PM₁₀、CO采样时间每天不少于18h。

具体见表 4.3.

表 4.3 阿勒泰子项目运营期外部空气环境监测计划

所在路段		序号	监测点位	监测项目	监测时段
新建道路	桥东路	1	克兰河度假村	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
	团结南路	2	新疆阿勒泰畜牧兽医职业学校	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
改建道路	金山北路	3	阿勒泰地区第一高级中学	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
	金山南路	4	阿勒泰地区第三高级中学	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
	公园路	5	驼峰风景区	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
		6	阿勒泰地区卫生学校	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
		7	幼儿园	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
	团结路	8	协和医院	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
	文化路	9	阿勒泰市一中	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日
扩建道路	红墩路	10	阿勒泰地区职业学校	NO ₂ , PM ₁₀ , CO	2013 年 7 月 3 日-4 日

所在路段	序号	监测点位	监测项目	监测时段
路	北二路	13	清真寺	NO ₂ , PM ₁₀ ,CO 2013年7月3日-4日
	北二路中段	14	少数民族坟地	NO ₂ , PM ₁₀ ,CO 2013年7月3日-4日
	北二路	15	阿勒泰市三中	NO ₂ , PM ₁₀ ,CO 2013年7月3日-4日
	园艺场路	16	清真寺	NO ₂ , PM ₁₀ ,CO 2013年7月3日-4日

声环境监测计划

24. 噪声监测计划如下:

- 监测项目: 等效 A 声级(L_{eq})
- 监测布点: 噪声环境敏感点。
- 监测时段: 2013 年 7 月 3 日-4 日, 每天昼间、夜间监测各一次, 监测两天。

具体见表 4.4.

表 4.4 阿勒泰子项目运营期外部噪声环境监测计划

所在路段	序号	监测点位	监测项目	监测时段
新建道路	桥东路	1	克兰河度假村	L _{Aeq} 2013年7月3日-4日
	团结南路	2	新疆阿勒泰畜牧兽医职业学校	L _{Aeq} 2013年7月3日-4日
改建道路	金山北路	3	阿勒泰地区第一高级中学	L _{Aeq} 2013年7月3日-4日
	金山南路	4	阿勒泰地区第三高级中学	L _{Aeq} 2013年7月3日-4日
	公园路	5	驼峰风景区	L _{Aeq} 2013年7月3日-4日
		6	阿勒泰地区卫生学校	L _{Aeq} 2013年7月3日-4日
		7	幼儿园	L _{Aeq} 2013年7月3日-4日
	团结路	8	协和医院	L _{Aeq} 2013年7月3日-4日
	文化路	9	阿勒泰市一中	L _{Aeq} 2013年7月3日-4日
扩建道路	红墩路	10	阿勒泰地区职业学校	L _{Aeq} 2013年7月3日-4日
	北二路	13	清真寺	L _{Aeq} 2013年7月3日-4日
	北二路中段	14	少数民族坟地	L _{Aeq} 2013年7月3日-4日
	北二路	15	阿勒泰市三中	L _{Aeq} 2013年7月3日-4日
	园艺场路	16	清真寺	L _{Aeq} 2013年7月3日-4日

E. 监测结果

C1.1 空气监测结果

25. 运营期空气环境监测结果见下表 4.5.

表 4.5 阿勒泰子项目运营期环境空气监测结果

单位:mg/m³

类别/所在路段		监测点位	监测日期	NO ₂	PM ₁₀	CO	是否达标
环境空气质量标准 (GB3095-1996)		一级, 日均值		0.08	0.05	4	
		二级, 日均值		0.12	0.15	4	
新建道路	桥东路	克兰河度假村	7月3日	0.005	0.03	0.666	是
			7月4日	0.008	0.03	0.735	是
	团结南路	新疆阿勒泰畜牧兽医职业学校	7月3日	0.005	0.03	0.666	是
			7月4日	0.008	0.03	0.735	是
改建道路	金山北路	阿勒泰地区第一高级中学	7月3日	0.004	0.031	0.537	是
			7月4日	0.006	0.039	0.649	是
	金山南路	阿勒泰地区第三高级中学	7月3日	0.004	0.031	0.537	是
			7月4日	0.006	0.039	0.649	是
	公园路	驼峰风景区(一类区)	7月3日	0.006	0.037	0.734	是
			7月4日	0.010	0.043	0.810	是
		阿勒泰地区卫生学校	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
		幼儿园	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
	团结路	协和医院	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
	文化路	阿勒泰市一中	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
扩建道路	红墩路	阿勒泰地区职业学校	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
	北二路	清真寺	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
	北二路中段	少数民族坟地	7月3日	0.003	0.029	0.486	是
			7月4日	0.005	0.036	0.522	是
	北二路	阿勒泰市三中	7月3日	0.005	0.033	0.666	是
			7月4日	0.008	0.041	0.735	是
	园艺场路	清真寺	7月3日	0.003	0.029	0.486	是
			7月4日	0.005	0.036	0.522	是

C1.2 空气监测结果评估

26. 根据上表 4.5 监测结果和下图 4.1 和图 4.2，结果显示在采取适当的环境管理措施后，大气环境敏感点日平均浓度监测可分别满足《环境空气质量标准》（GB3095-1996）一级和二级标准，无数据超过国家标准限值。这说明通过采取有关运营期环境管理措施，在周围大气敏感点水平都小于规定的限值，受到影响很有限。
27. 趋势分析。PM₁₀ 和 NO₂ 在 2011 年的第一次外部环境监测中没有监测。二氧化碳在 2011 年第一和 2012 年第二期外部环境监测也没有监测。与 2012 年的第二次报告结果相比，2013 年第三次监测 PM₁₀ 和 NO₂ 水平略低。这可能意味着该子项目运行后，已经贡献积极的环境效益。道路条件和交通环境管理改善减少灰尘和其他大气污染物的排放。

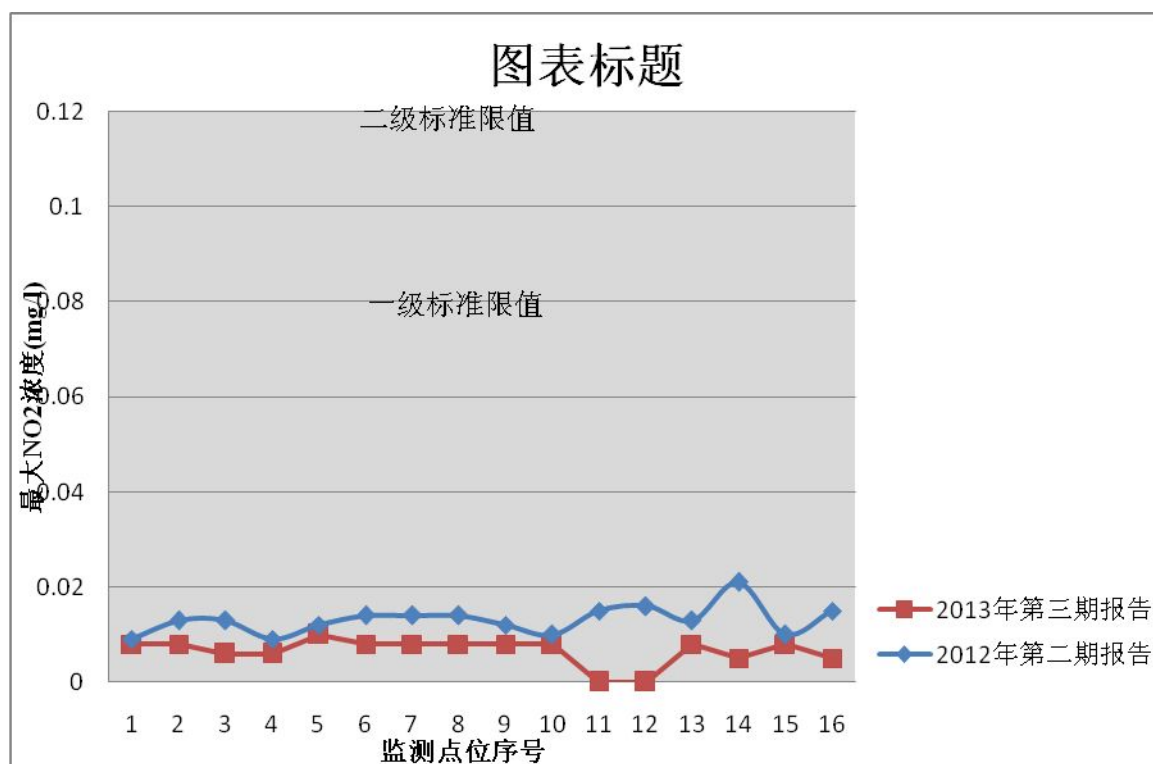


图 4.1 所有监测点位 NO₂ 最大值

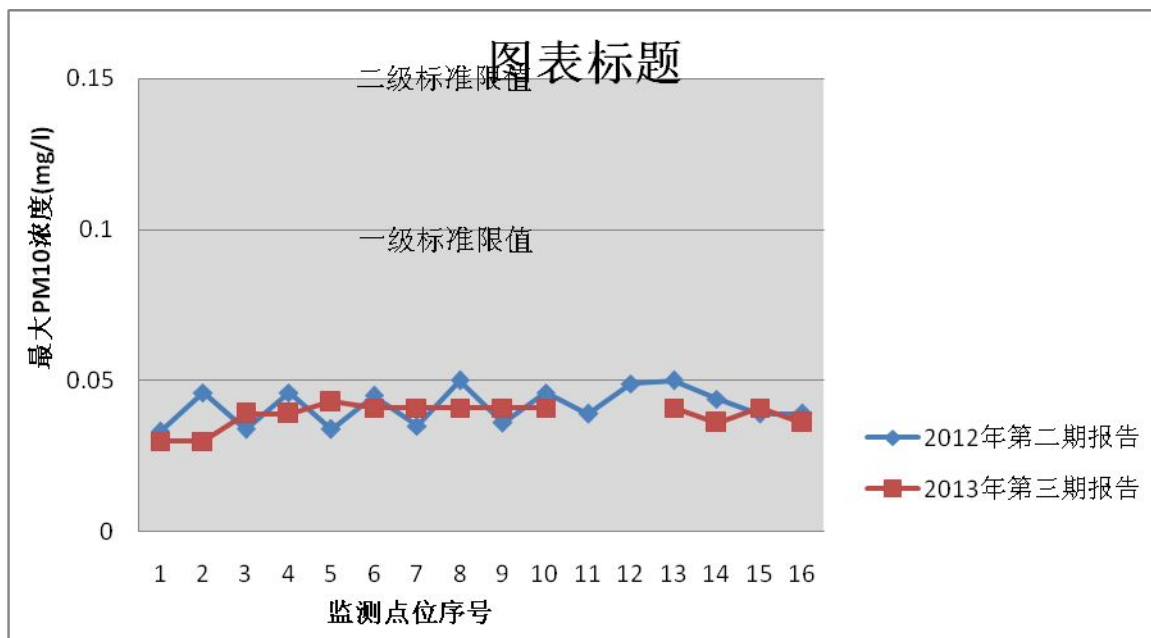


图 4.2 所有监测点位 PM_{10} 最大值

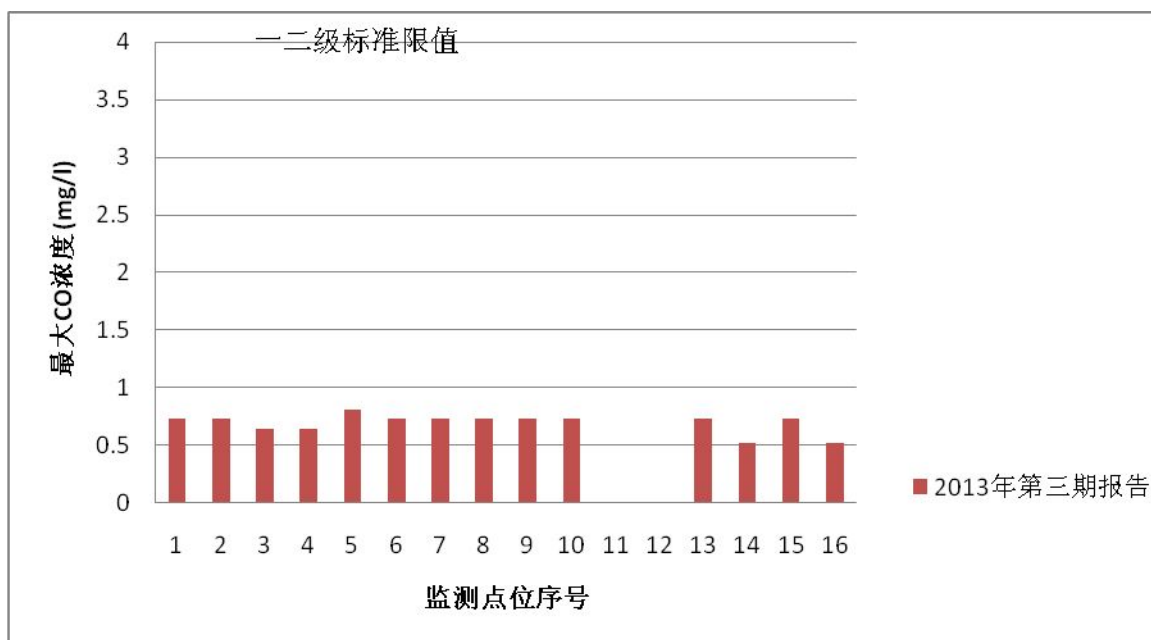


图 4.3 所有监测点位 CO 最大值

C2.1 噪声监测结果

28. 阿勒泰子项目噪声敏感点昼夜噪声监测结果显示在下表 4.6 中（无夜间施工）。

表 4.6 阿勒泰子项目噪声监测结果

单位:dB(A)

序号	监测点位	噪声监测值				声环境质量标准 (GB3096—2008)		是否达标
		监测数据 (7月3日)		监测数据 (7月4日)		昼	夜	
		昼	夜	昼	夜			
1#	克兰河度假村	41.2	38.4	46.5	41.3	55	45	是
2#	新疆阿勒泰畜牧兽医职业学校	46.1	47.9	56.6	48.7	60	50	是
3#	阿勒泰地区第一高级中学	41.1	36.5	47.5	37.8	60	50	是
4#	阿勒泰地区第三高级中学	59.9	48.3	52.4	44.6	60	50	是
5#	驼峰风景区	49.3	43.4	54.2	44.8	55	45	是
6#	阿勒泰地区卫生学校	38.6	35.9	58.8	46.7	60	50	是
7#	幼儿园	48.8	43.7	43.9	41.2	60	50	是
8#	协和医院	47.9	43.4	48.8	44.0	60	50	是
9#	阿勒泰市一中	59.9	49.2	58.7	48.1	60	50	是
10#	阿勒泰地区职业学校	41.3	38.4	46.6	42.5	60	50	是
11#	阿勒泰市第二中学	35.9	37.4	43.6	39.6	60	50	是
14#	少数民族坟地	32.0	31.4	45.3	41.3	55	45	是
15#	阿勒泰市三中	41.0	40.8	56.1	41.7	60	50	是
16#	清真寺	42.3	41.7	43.3	40.3	60	50	是

C2.2 噪声监测结果评估

29. 根据上表 4.6 和下图 4.3 的监测数据，结果显示所有敏感点的噪声水平分别满足《声环境质量标准》（GB3096-2008）1 类和 2 类标准。说明通过采取有关运营期环境管理措施，在周围环境噪声敏感点水平均小于规定的限值，受到影响很有限。

30. 趋势分析。与 2012 年的第二次报告结果相比，2013 年第三次监测没有明显变化趋势。

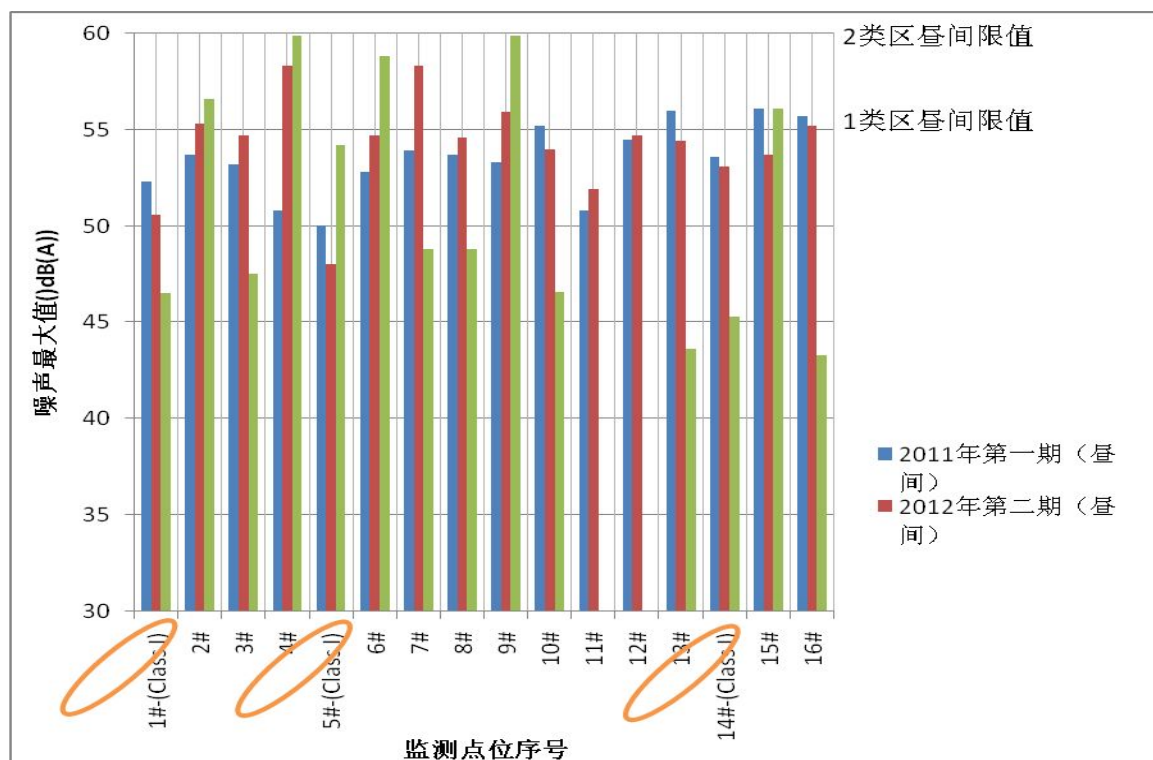


图 4.4 本期和上期所有监测点位昼间最大噪声值

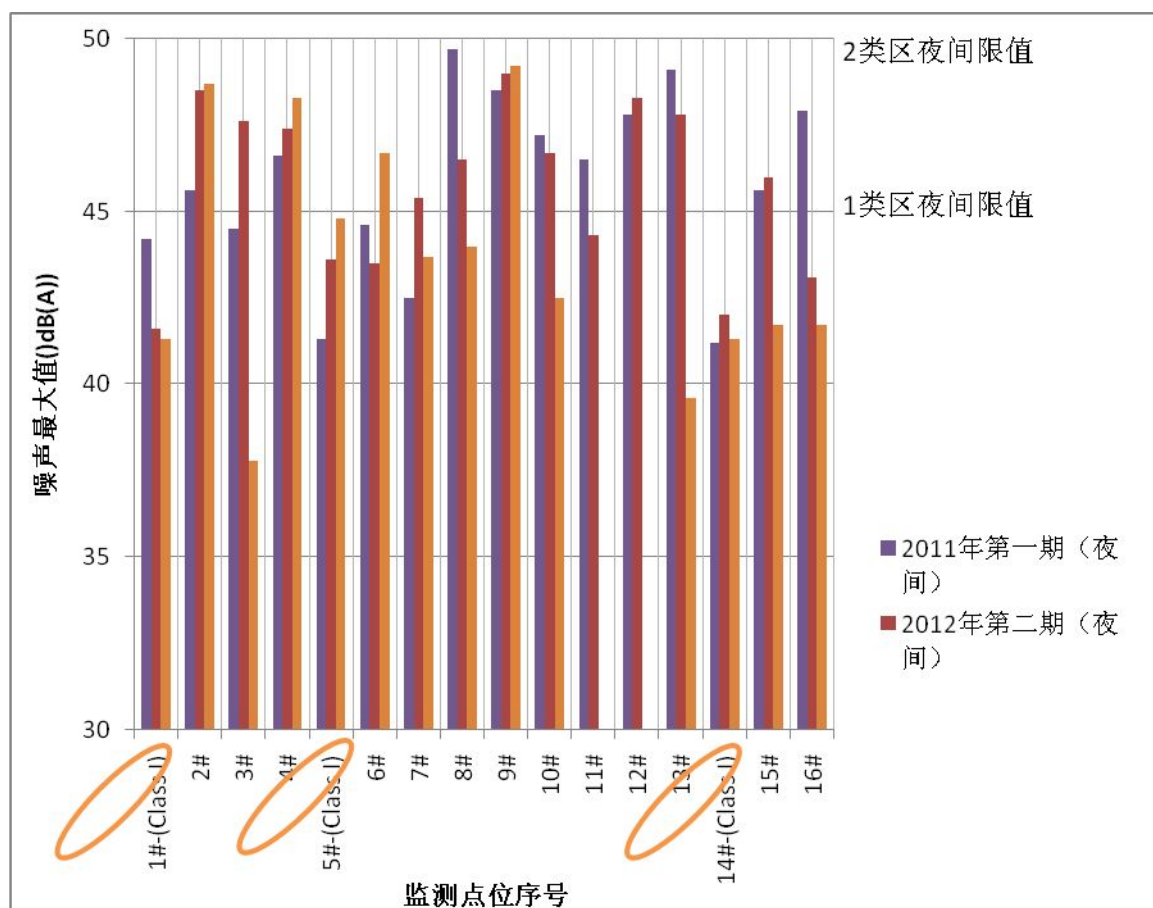


图 4.5 本期和上期所有监测点位夜间最大噪声值

V. 公众参与和申诉

31. 环评摘要（SEIA）中公众参与计划的实施情况显示在下表5.1的最右列。总体上，公众咨询计划迄今已经妥当实施。

表 5.1 公众参与计划实施情况

组织者	方法	次数	主题	参加者	实施情况	2014年计划
施工阶段						
新疆项目办，市项目办和实施机构	公众协商会和现场考察	至少一次	根据需要，调整缓解措施；施工的影响；意见及建议	子项目附近的居民，社会各界代表	开工前在每个施工现场成立环境管理机构。多次进行现场检查。	—
新疆项目办，市项目办和实施机构	专家研讨会或会议	在公众咨询基础上根据需要进行。	针对缓解措施的意见和建议，公众意见	来自不同部门的专家，媒体	将根据需要进行。	—
运营阶段						
新疆项目办，市项目办和实施机构，运营机构	公众协商会和现场考察	前两年进行一次	减缓措施的影响，运营期影响，意见和建议	子项目附近的居民，居民代表，社会各界代表	多次进行现场检查。	至少进行一次。
新疆项目办，市项目办和实施机构，运营机构	专家研讨会或新闻会议	在公众咨询基础上根据需要进行。	针对运营期环境影响缓解措施的意见和建议，公众意见	来自不同部门的专家，媒体	还未到运营期。	将根据需要进行。

32. 在项目实施之初，设立了一个申诉补救机制（GRM）。阿尔泰子项目办和环境管理机构的环境管理人员作为申诉联络点。申诉联络协调员定期访问了现场。在现场访问中，申诉联络协调员与附近施工现场的当地居民进行访谈。非正式访谈聚焦于施工活动对社区干扰引起的公众投诉，例如建筑噪音和粉尘，以及公众对环境和移民安置的担忧。

33. 在每个施工现场承包商和现场项目经理的联系信息显示在现场公告牌上。此外可以通过阿勒泰市环保局热线电话(0906-2135650) 传递市民的投诉和关切。

34. 根据从阿勒泰市环保局，子项目环境管理机构/实施机构/承包商收集的信息，没有接到通过正式的申诉机制（阿尔泰环保局和施工现场承包商已公示的热线）提交投诉。

35. 下一报告期（2014 年）工作计划见上表 5.1.

VI. 机构加强及培训计划实施情况

36. 截至本报告期末，亚行官员和咨询专家组分别为新疆项目办和实施机构就项目管理提供了各方面不同的培训。
- 2009年11月3日至5日亚行驻中国代表处为新疆亚行项目提供了项目实施及管理培训，内容包括：(i) 招标采购；(ii) 支付报账；(iii) 财务管理；(iv) 环境保护；(v) 移民安置等方面的业务培训，使新疆各级项目管理人员进一步了解和熟悉了亚行贷款的相关规定和执行程序，提高了业务素质。
 - 2010年10月新疆项目办组织各子项目区人员到上海参加由亚行东亚局和同济大学建筑与城市规划学院合作举办的“亚太城市可持续发展最佳实践研讨会”，会议为期2天半，进行有关污水污泥治理、能源效率和城市规划的案例及城市管理方面的知识交流，并现场参观了被誉为“最佳规划案例”的上海朱家角镇，还赴亚行贷款上海城市环境项目二期城市污水管子理项目现场参观访问了白龙港污泥处理工程子项目。
 - 2013年11月12到13日，由亚洲开发银行和同济大学共同主办的主题为“中国新城和新区：挑战与机遇”的第四届“同济—亚行知识共享”研讨会举行。会上，作为“2013年中国新城和新区最佳实践案例”，嘉定新城介绍了城市规划成果及实施经验。来自亚洲10多个国家负责城市发展工作的高级官员及国内外知名专家学者出席了此次研讨会，他们在会上表示，嘉定新城作为上海市“十二五”规划确定重点发展的3座新城之一，在城市规划编制、基础设施建设、环境气候变化和能量效率、城市扩展和更新、城市交通等方面，不断创新，勇于实践，取得了丰富的经验，成绩显著，值得肯定。
 - 2011年1月新疆项目办组织所有子项目单位在乌鲁木齐组织了亚行贷款环境监测、移民监测、项目绩效管理系统、财务管理和审计等方面的培训。除此之外，贷款实施咨询顾问还提供一系列环境管理及环境管理计划实施相关培训。同时也提供了大量在职培训，诸如会议，日常在职技术指导和转移。
37. 外部培训进展。
- 2012年4月新疆项目办组织所有子项目单位在乌鲁木齐进行了第一期国内外外部培训，内容包括项目管理、交通路面设计和道路安全审计、合同管理、合同变更、提款报帐与支付、审计、环境监测、移民监测、项目绩效监测系统(PPMS)和绩效管理、亚行项目中期调整等方面，并安排进行了亚行项目经验交流研讨。第一期外部培训总结已于2012年5月提交亚行。
 - 2012年5月新疆项目办组织所有子项目单位在安徽进行了第二期国内外外部培训。内容包括与合肥亚行项目办的相关负责人在合肥市财政局进行座谈，双方就项目管理、招标采购、提款报账、移民安置、中期调整以及竣工验收和资产移交等方面的内容进行了广泛的经验交流，现场参观合肥亚行项目现场，并与该子项目的业主进行深入沟通。该子项目建设内容主要包括污水截留和处理（望塘污水处理厂、清溪路垃圾填埋场封场子项目）、河道综合治理及生态恢复（四里河河道整治子项目）、巢湖沿岸湿地建设及面源污染治理示范，项目单位还现场考察了合肥市城市建设新貌和黄山风景区。第二期外部培训总结已于2012年6月提交亚行。
38. 环境管理计划（EMP）中机构加强和能力建设计划建议的能力建设活动的实施状况列于表6.1。总的来讲，机构加强和能力建设计划迄今实施状况良好。

表 6.1 机构能力加强及培训实施情况

机构加强活动	机构	机构加强计划	时间	实施状态	2014年计划
能力建设	新疆项目办，市项目办和实施机构	设立机构，明确每个岗位职责	项目准备和实施期	已经履行。在项目开始前阿勒泰市项目办和各实施机构已经进行妥善人事安排。	—
监测	项目办，实施机构，承包商	采购相关监测设备仪器	项目准备和实施期	承包商/监理负责内部环境监测。 聘请了阿勒泰地区环境监测站负责外部环境监测支持。	2014年本子项目将投入运营。阿勒泰建设局将负责整个项目环境管理。阿勒泰市市政养护公司将负责道路与街路照明设施监测；阿勒泰市园林绿化管理部门将负责街道景观监测；阿勒泰市环境卫生站将负责环卫设施监测。
培训	参加人	内容	次数	实施状态及未来计划	
环境管理计划实施及调整，争议解决	市项目办，实施机构，承包商	制订及调整环境管理计划，应急响应，环境政策法规，环境管理	1	2011年1月、2012年4月新疆项目办共组织两次。	—
环境流程及环境友好采购	市项目办，实施机构，承包商	工程技术，控制，设备比选，固废管理，道路及交通管理	2	2011年1月、2012年4月新疆项目办共组织两次。	—
环境监测及应急响应计划	市项目办，实施机构，承包商	监测方法，数据收集及处理，报告机制	1	在贷款实施顾问咨询服务启动阶段已经进行环境监测及报告相关的研讨会。	—
环境政策及计划	市项目办，实施机构，承包商	环境法规，环境管理，应急响应	1	2011年1月、2012年4月新疆项目办共组织两次。	—
固体废弃物管理	市项目办，实施机构，承包商	固废管理法规，实践及经验	1	已经制订培训计划，已经于2012年5月进行过一次。	将根据需要进行。
生态城市发展	吐鲁番和阿勒泰市项目办	生态城市计划及意识教育	1	2010年10月、2013年11月新疆项目办已经组织两次。	—
环卫意识和参与活动	市项目办	提升城市领导、部门领导、公众包括青少年意识水平	1	已经制订方案。	将进行。

环境教育/ 固废管理 课程	市项目办， 环保局及教 育局	自然及社会科学，固废 管理前沿（概念性意识 教育），固废问题技术 研究，及社区参与	1	将在未来进行。	将进行。
交通及安 全管理	市项目办， 实施机构， 承包商	学习交通及安全管理	2	2012年4月新疆项目 办组织一次。	将进行。

VII. 贷款法律文本中环境相关约定合规情况

39. 所有环境保障条款及约文都已经得到遵守或正在遵守。摘要见下表7.1。

表 7.1 贷款约文环境条款合规情况

贷款约文中环境条款	章节及条款序号	合规状况
贷款协定 (亚行和中华人民共和国 于2009年8月26日签署)		
第四条- 特殊约定		
中文翻译略	第 4.01(a)	正在履约中
项目协定 (亚行和中华人民共和国 于2009年8月26日签署)		
第二条-特殊约定		
中文翻译略	第2.01(b)	正在履约中
中文翻译略	第2.11(a)	正在履约中
中文翻译略	第2.11(b)	即将在运营阶段履约.
附表		
项目执行：财务事项 (中文翻译略)		
公众意识计划		
中文翻译略	13	正在履约中
环境		
中文翻译略	18	正在履约中
中文翻译略	19	正在履约中
中文翻译略	20	如适用将进行履约
中文翻译略	21	正在履约中
中文翻译略	22	正在履约中
中文翻译略	23	正在履约中。第二期外部环境监测报告已经提交亚行并于2012年6月在亚行网站上公示。第三期报告已经提交亚行并于2013年3月公示。
新疆城市交通和环境改善项目环评摘要中的其它条款，2008年9月		
由于需要对很多设计项目进行复杂分析，阿勒泰应聘请国内最好的设计院进行斜拉桥设计。	第171段 (vi)	已经遵守。

国内法规履约情况

40. 下表 7.2 提供了中国的环境政策和法规、标准清单，适用于本子项目所有设施的设计、建造和运行。对一些其他的相关文件也进行了审查。其中包含环境影响、缓解措施和监测方面的信息和/或要求，在项目实施过程中也应当遵守。

表 7.2 相关环境法规及标准

主题	适用的环境法规及标准
一般环境保护	● 中文翻译略
新疆地方环境保护	● 中文翻译略

主题	适用的环境法规及标准
水资源	● 中文翻译略
森林资源	● 中文翻译略
草地保护	● 中文翻译略
野生动物保护	● 中文翻译略
一般土地利用与管理	● 中文翻译略
文化遗产保护	● 中文翻译略
生物保护	● 中文翻译略
水土保持	● 中文翻译略
防洪	● 中文翻译略
固废管理	● 中文翻译略
一般水污染防治	● 中文翻译略
一般空气污染防治	● 中文翻译略
城区噪声	● 中文翻译略
道路管理	● 中文翻译略

41. 通过文件审查和实地考察了解到，阿勒泰子项目实施状况符合相关环保法律，法规和标准，环保措施或设施与主体工程同时设计和施工。

VIII. 关键环境问题

A. 鉴别的关键环境问题

42. 基于上述监测和检查的结果，报告期内没有提出任何重大环境相关的问题。也没有发出任何土建工程承包商不合规的通知。

IX. 结论及建议

A. 环境管理措施实施总体进展

43. 根据阿勒泰亚行贷款城市交通和环境改善项目第三次外部环境监测的结果，发现承包商基本上已经采取了环境影响评估报告和环评摘要中列出的相关环境管理措施，并对项目实施可能产生的负面环境影响予以出足够的关注。根据目前的外部环境监测结果，在施工和运营期间已采取相应的措施，尽量减少对环境的不利影响。外部环境监测的结论汇总如下：

- 已经在施工现场和环境敏感点采取适当的环境管理措施，对外部环境质量和环境敏感点的影响比较有限。
- 在施工和运营期间已采取相应的环境管理措施，确保在施工现场的空气和噪音满足环境标准限值要求，对周围的空气和噪声环境敏感点的影响较小。

B. 发现的问题及建议

44. 在2013年，子项目施工和运营没有有关环境方面引起的问题。

C. 2012 年及 2013 年上半年环境监测评估行动计划

45. 在本报告期内没有建议的纠正行动。根据目前子项目活动，表9.1列出了持续满意环境合规的行动计划。

表 9.1 持续环境合规满意行动计划

行动	负责单位	时间框架
实施环境管理计划（EMP）中运营期的缓解措施	实施机构	连续，月度报告
实施环境管理计划并进行内部监测	承包商/监理单位/实施机构	连续，月度报告
环境管理计划外部监测	阿勒泰地区环境监测站	连续，半年度报告
机构加强和能力建设	阿勒泰市项目办，实施机构，贷款实施咨询顾问，承包商，监理单位	部分完成，将随着项目进展持续进行
运营期公众参与	阿勒泰市项目办，实施机构，贷款实施咨询顾问，承包商，监理单位	正在实施，将持续进行
环境批准/同意的跟进行动	承包商	尽可能最早
依据原国家环保总局《建设项目竣工环境保护验收管理办法》（2001）进行环保竣工验收审计	有资质的机构	本子项目竣工后随即进行

X. 附件

I. 监测评估标准

II. 现场照片

附表 I 监测评估标准

环境要素	评估标准		监测项目	标准限值	单位
大气	《环境空气质量标准》 (GB3095-1996)	一级, 日均浓度	NO ₂	0.08	mg/m ³
			PM ₁₀	0.05	
		二级, 日均浓度	NO ₂	0.12	
			PM ₁₀	0.15	
		一、二级, 日均浓度	CO	4	
噪声	《声环境质量标准》 (GB3096-2008)	1 类区	昼间	55	dB(A)
			夜间	45	
		2 类区	昼间	60	
			夜间	50	

附件 II 现场照片



图 A2.1 滨河路-1



图 A2.2 滨河路-2



图 A2.3 红墩桥-1



图 A2.4 红墩桥-2

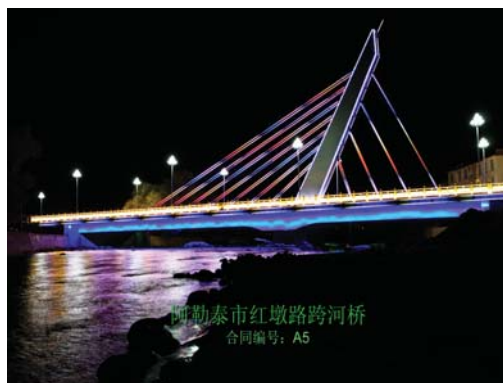


图 A2-5 红墩桥-3

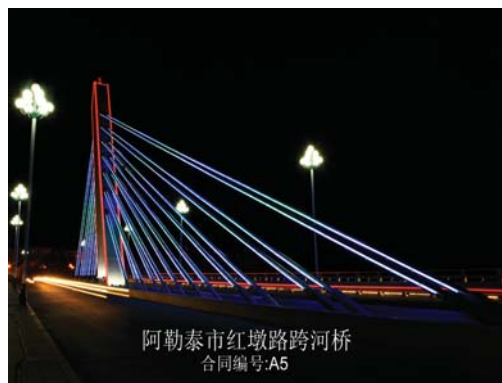


图 A2-6 红墩桥-4

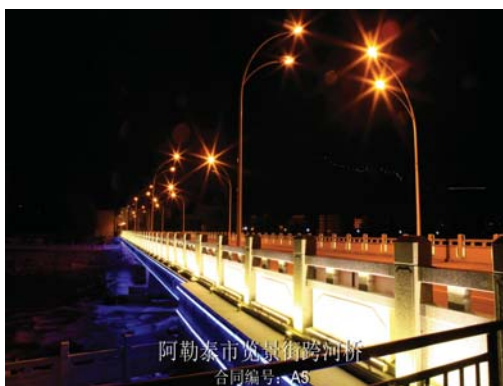


图 A2-7 览景街-1



图 A2-8 览景街-2



图 A2-9 览景街-3



图 A2-10 文化路-1

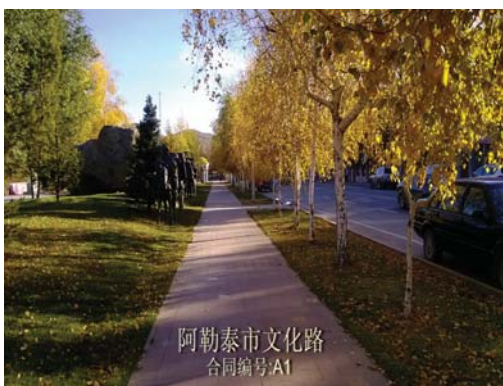


图 A2-11 文化路-2

亚洲开发银行贷款
新疆城市交通和环境改善项目
贷款号：2526-PRC

昌吉市外部环境监测报告
(第三期)

昌吉市环境监测站

2013 年 11 月

1 任务来源及监测目的

根据亚行贷款---昌吉市城市交通与环境改善项目环评报告及亚行项目环评摘要(SEIA)中的环境管理计划和相关要求,针对工程建设期间和项目建成试运营期间等环境影响因素进行日常监测。遵照降低项目负面影响的目标,依据国家各种规范、标准,以及亚行的安全保障政策,根据环境影响监测和数据分析,评估建设期间和建成试运营期:1)环境保护措施的效果,是否符合相关法律法规中的要求;2)环境影响的发展趋势;3)项目环境管理计划的总体效果。

我站在承担昌吉市城市交通与环境改善项目外部环境监测的任务后,现根据2013年10月的现场实地调查和现场监测情况,编制完成第一期《昌吉市城市交通与环境改善亚行贷款项目外部环境监测报告》。

2 项目概况

2.1 项目背景

昌吉市地处亚欧大陆中心，历来为北疆交通要隘，亚欧大陆桥和 312 国道及乌奎高速路贯穿市境，现为乌鲁木齐的卫星城市，两地由高速公路贯通，行程 35 公里，距乌鲁木齐国际机场仅 18 公里，312 国道、第二座亚欧大陆桥和乌奎高速路贯穿而过，是通向北疆各地的交通要道。昌吉市是自治区西部大开发扶优扶强、首批推出的重点城市，被国家计委等部门联合认定为最佳投资环境城市、最佳人居环境城市、最佳交通通讯条件城市、高额投资回报率城市。改革开放以来，特别是西部大开发战略实施以来，昌吉市的经济建设呈现出快速健康发展的势头。全市 GDP 连续六年保持两位数增长。先后荣获全国科技工作先进城市、全国环境整治优秀城市、全国卫生先进城市、全国双拥模范城市等 10 项国家级荣誉。

目前昌吉市城市路网以乌伊路（312 国道市区段）、塔城路、吐鲁番路、世纪大道、北京路、中山路形成的“三横三纵”模式为骨架。由于体制、隶属等历史的原因，昌吉市现状道路等级低，人行道、非机动车道等城市道路功能不完善，因此而影响道路的通行能力。随着昌吉市的发展，对外联系将会大大加强，目前的道路状况将会无法满足对外交通联系的需要。所以对城市现状道路新建时非常有必要的。

2.2 建设规模及内容

项目建设内容主要为道路工程，包括新建和改扩建城市道路 9 条。（其中石河子路、宁边西路、健康西路、建国西路、西、北外环路、南公园西路为新建道路，其总长度 13.8 7 Km,青年路、塔城路为改扩建道路，其总长度 9.85 Km）。以及相应配套附属设施建设等。

2.3 组织机构

本项目组织机构图如下：

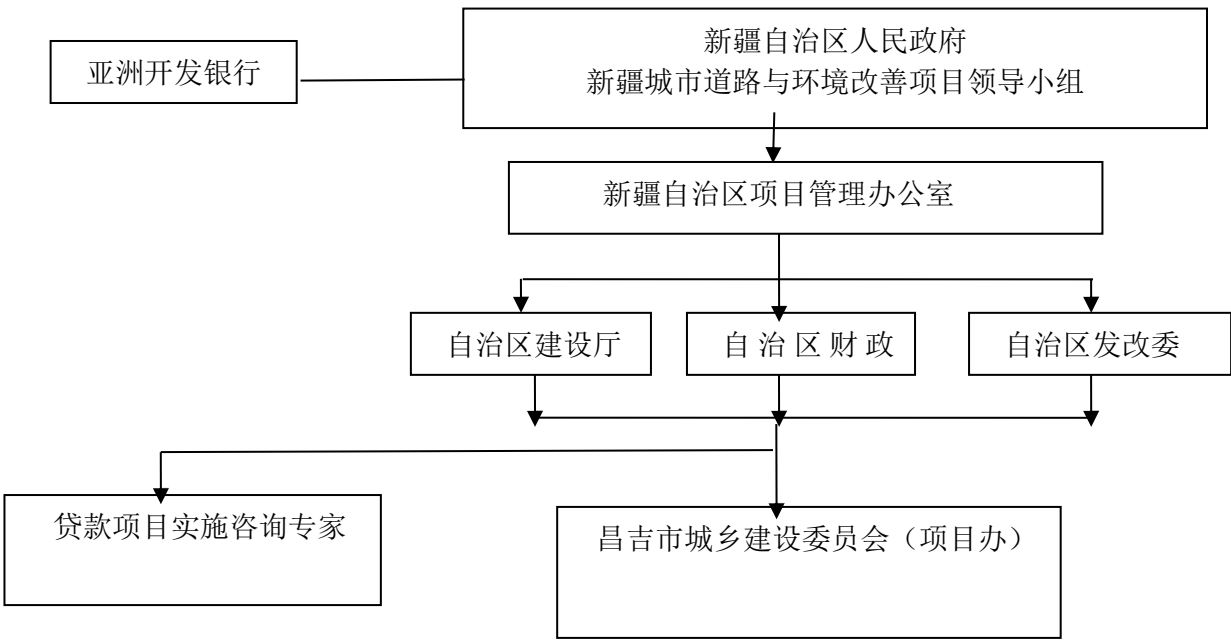


图 2-1 亚行贷款项目组织机构图

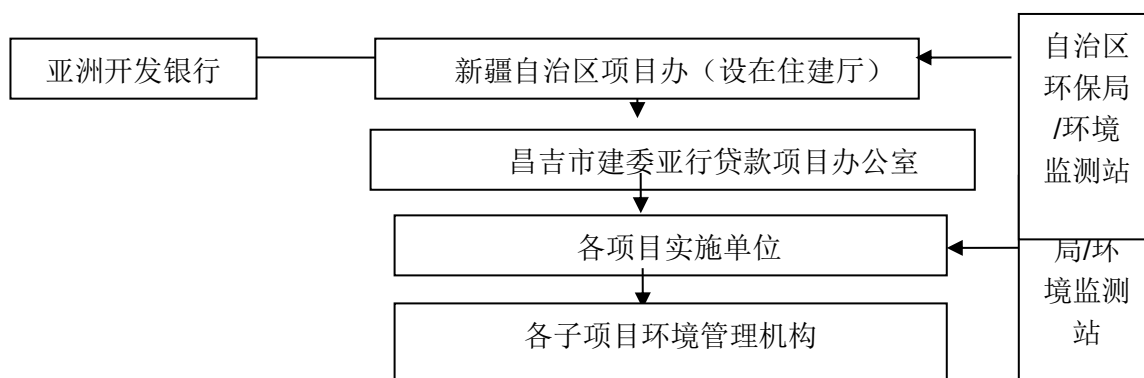


图 2-2 亚行贷款项目环境管理组织机构图

2.4 项目工程实施进度

项目截止 2013 年 11 月实施进度表 2-1。

表 2-1 项目建设进度表

序号	路名	开工时间	截止 2012 年 11 月实施进度	阶段	完成投资（万元）	2014 年计划安排
1	西、北外环	2011 年 4 月	完工	使用期	4400	全部完工
2	南公园西路	2011 年 4 月	完工	使用期	2600	全部完工
3	青年路	2011 年 4 月	基本完工	施工期	3300	全部完工
4	石河子路	2011 年 4 月	完工	使用期	1700	全部完工
5	塔城路	2012 年 4 月	基本完工	施工期	2200	全部完工
6	健康路	2012 年 4 月	完工	使用期	500	全部完工
7	宁边路	2012 年 4 月	基本完工	施工期	500	全部完工

3 环境管理措施

3.1 环境管理的目的

通过对项目中的各个子项目进行项目管理，防止施工期和营运期环境污染，尽量降低本项目在实施过程中带来的环境负面效应，最终达到昌吉市城市环境改善的目的。

3.2 环境管理措施落实情况

3.2.1 施工期环境管理

表 3-1 施工期环境管理措施

环境问题	施工期采取的环境管理措施
扬尘/空气 污染	1) 施工期间随时洒水，每天不得少于 2 次，周围居民点较多时应加大洒水频率（主要在巷道施工时），在路基填充时，需洒水以压实材料，在材料压实后，将定期洒水，以防起尘。
	2) 粉状原材料如水泥、石灰堆放应有蓬布遮盖。在进出砂石料场的主要运输道路及施工现场应配备洒水车，定期定时洒水，以减少装卸、运输砂石料产生的扬尘。
	3) 在施工时，路基应及时分层压实，并注意洒水降尘，管道铺设尽量采用分段施工，完工后及时填埋，尽快恢复路面交通，避免交通阻塞以及开挖土方产生扬尘。
施工营地	1) 在施工营地采取足够的措施，如提供垃圾箱和卫生处理设施，定期清理公厕的粪水。
	2) 垃圾收集在固定场所的垃圾箱内，并定期清理。
噪声	1) 严格执行工业企业噪声标准以防止建筑工人受噪声侵害，靠近高噪声源的工人将进行劳动保护，并限制工作时间。
	2) 靠近居民区施工时，高噪声的施工将禁止进行，可固定的机械要远离居民区。
	3) 加强对机械和车辆的维修，使它们保持较低的噪声。
生态环境	1) 尽量减少填挖土方。
	2) 加强施工人员的环境保护教育，严禁随意排放废物和破坏植被。
水土流失	1) 加强路基防护，要建设道路排水工程。
	2) 弃土后要及平整场地，恢复植被。
事故风险	1) 为保证施工安全，在施工期临时在道路上安装有效照明设备和安全信号。
	2) 将采用有效的安全和警告措施，以减少事故。
交通和运输	1) 将尽可能利用当地施工材料，以避免施工材料的长途运输，特别是土石方。

	2) 当施工期间道路堵塞时, 在与交通和公安部门协商后, 采取足够的引导交通的措施。
	3) 考虑在交通堵塞较少的季节, 进行材料的预先准备。

3.2.2 运营期环境管理

表 3-2 运营期环境管理措施

环境问题	运营期环境管理措施
运输管理	<p>1) 对有毒有害化学品的运输, 将需要有交通部门颁发的 3 证—准运证、驾驶证和押车证。根据交通部规定所有运送危险品的车辆将有一个统一标志。</p> <p>2) 公安和运输管理部门、消防部门将为运送危险品的车辆指定专门的运输路线, 危险品车辆只能停放在指定的停车场。</p>
车辆管理	<p>1) 加强车辆管理, 上路车辆要求必须符合国家汽车尾气排放标准, 并进行年检和定期检查。</p> <p>2) 加强对宣传群众有关车辆产生空气污染、噪声及相关法规的教育。</p>
道路维护	<p>1) 加强道路维护, 保证车辆正常行驶, 减少汽车尾气和噪声的排放, 避免交通阻塞。</p> <p>2) 合理安排路面维修时间, 避开高峰期。</p>
噪声	根据监测结果, 在噪声超标的地方设立声屏障或进行交通管制。
排水系统的维护	定期进行排水的清淤, 以确保排水系统的正常运行。
环境监理	<p>1) 有专人负责清理路面卫生, 及时清除路面障碍物保证交通安全, 由市环卫大队负责。</p> <p>2) 定期维护、检查路标、警示牌和路灯照明, 保证行车畅通。</p> <p>3) 保证道路两侧绿化带、隔离带和人行步道树木要生长良好, 造型植物保持优美形态, 长青旺盛, 由园林管理处负责。</p>

4 环境保护目标:

根据亚行新疆城市交通及环境改善项目——昌吉市环境影响报告书中确定的环境敏感目标,结合实际施工进度,5条道路正处施工阶段,其中3条路涉及到环境敏感点,因此我站对目前实施的亚行新疆城市交通及环境改善项目中三条施工期道路(青年路、南公园西路、石河子路)敏感目标进行了实际现场调研与环境监测,项目环境保护一览见表4-1:

表 4-1 环境保护一览表

序号	环境要素	环境保护目标	环境功能
1	大气环境	青年路桃园小区	《环境空气质量标准》(GB3095-1996)二级
		南公园路昌吉市妇幼保健院	
		石河子路凯迪名苑	
2	声环境	青年路桃园小区	《声环境质量标准》(GB3096-2008)中“2类区”标准
		南公园路昌吉市妇幼保健院	
		石河子路凯迪名苑	

5 本次环境监测具体工作内容

项目道路建设均在市区内及近郊，经过实地考察，项目建设不涉及自然保护区、风景名胜区，但涉及到道路两侧分布的噪声、大气环境敏感点。

根据项目影响区的环境特点和工程环境影响特征，本项目计划只对项目的建设期进行必要的环境监测。

5.1 本项目环境监测实施的环境监测工作内容如下：

- 1、监测的具体点位与时间根据项目的现场内容和路线确定。
- 2、监测点位重点放在较为敏感的地段如居民区、学校、医院等。

5.2 大气环境监测

监测项目：TSP

监测布点：南公园路、石河子路及青年路附近大气环境敏感点。

监测时段：2013 年 10 月 9 日—10 月 15 日，连续监测七天，TSP 采样时间每天不少于 12h，每天一次。

5.3 噪声环境监测

监测项目：等效 A 声级(Leq)。

监测布点：青年路、石河子路及南公园西路附近居民区噪声环境敏感点。

监测时段：2013 年 10 月 9 日，昼、夜间监测 1 次，监测一天。

6 监测方法和评价标准

根据国家有关技术规范，亚行新疆城市交通及环境改善项目——昌吉市环境影响报告书的相关内容，确定本次环境监测分析及评价标准，见表 6-1。

表 6-1 监测分析及评价标准一览表

环境要素	采样及分析方法	评价标准
大气	环境空气 总悬浮颗粒物的测定 重量法(GB/T 15432-95)	《环境空气质量标准》（GB3095-1996）二级
噪声	《声环境质量标准》（GB3096-2008）	《声环境质量标准》（GB3096-2008）中“2 类区”标准

7 环境监测结果与评价

7.1 大气环境监测结果

表 7-1 大气监测结果一览表 单位: mg/m³

监测点位	监测日期	TSP
青年路桃园小区	2013 年 10 月 9 日	0.178
	2013 年 10 月 10 日	0.174
	2013 年 10 月 11 日	0.188
	2013 年 10 月 12 日	0.178
	2013 年 10 月 13 日	0.169
	2013 年 10 月 14 日	0.189
	2013 年 10 月 15 日	0.175
石河子路凯迪名苑	2013 年 10 月 9 日	0.177
	2013 年 10 月 10 日	0.169
	2013 年 10 月 11 日	0.189
	2013 年 10 月 12 日	0.175
	2013 年 10 月 13 日	0.177
	2013 年 10 月 14 日	0.192
	2013 年 10 月 15 日	0.195
南公园路妇幼保健院	2013 年 10 月 9 日	0.163
	2013 年 10 月 10 日	0.165
	2013 年 10 月 11 日	0.202
	2013 年 10 月 12 日	0.163
	2013 年 10 月 13 日	0.178
	2013 年 10 月 14 日	0.174
	2013 年 10 月 15 日	0.188
《环境空气质量标准》(GB3095-1996) 二级限值		0.30

由表监测结果可知, 青年路、石河子路及南公园西路施工期附近所涉及到的大气环境敏感点 TSP 日均值均满足《环境空气质量标准》(GB3095-1996) 二级标准, 未出现超标现象。

7.2 噪声环境监测结果

本次对施工期的青年路、石河子路及南公园西路所涉及到的噪声环境敏感点进行了昼、夜噪声监测，噪声环境监测见表 7-2：

表 7-2 噪声环境监测结果一览表 单位：dB(A)

监测点位	名称	噪声监测值	
		昼间	夜间
△1 [#]	青年路桃园小区	54.8	44.8
△2 [#]	石河子路凯迪名苑	53.3	43.9
△3 [#]	南公园路市妇幼保健院	54.5	44.3
《声环境质量标准》（GB3096-2008）中“2类区”标准限值		60	50

由表的环境噪声现状监测结果，可以看出青年路、石河子路及南公园西路路施工期附近所涉及到的主要敏感点昼、夜噪声均达到《声环境质量标准》（GB3096-2008）中“2类区”标准。

8 结论与建议

8.1 结论

通过本次对亚行新疆城市交通及环境改善项目—昌吉市子项目青年路、石河子路、南公园西路、西、北外环路施工期的外环境监测来看，均符合国家相关标准限值。

8.2 建议

- 1、施工单位应该文明施工，加强监督管理，减轻对周围环境的影响；
- 2、施工单位应继续严格执行项目环境管理计划及措施，降低施工时废水、扬尘、机械噪声对环境的不利影响；
- 3、加强各施工单位人员的环境影响管理教育，增加环境保护意识，保证项目健康有序进行。

附 表

附表 1 环境空气评价标准（GB3095-1996 中的二级标准）

污染物	日均浓度值, mg/m ³
TSP	0.30

附表 2 城市区域环境噪声标准（GB 3096-2008） 单
位: dB(A)

功能区	0 类	1 类	2 类	3 类	4a 类	4b 类 *
昼间	≤50	≤55	≤60	≤65	≤70	≤70
夜间	≤40	≤45	≤50	≤55	≤55	≤60

亚洲开发银行贷款
新疆城市交通和环境改善项目
贷款号：2526-PRC

哈密市外部环境
第三次监测报告

二〇一三年十一月

1、任务来源及监测目的

根据亚行新疆城市交通及环境改善项目----哈密市《环境影响报告书》中的环境管理与监测计划的相关要求，针对工程建设期间和项目建成试运营期间等环境影响因素进行日常监测。遵照降低项目负面影响的目标，依据国家各种规范、标准，以及亚行的安全政策，根据环境影响监测和数据分析，评估建设期间和建成运营期：

1、环境保护措施的效果，是否符合相关法律法规中的要求；2、环境影响的发展趋势；3、项目环境管理计划的总体效果。我局在承担亚行新疆城市交通及环境改善项目----哈密市外部环境监测的任务后，对哈密市项目外部环境进行第一次、第二次监测，编制完成第一次、第二次外部环境监测报告。现我局根据对人民路现场实地勘探和现场监测情况，编制完成《亚行新疆城市交通及环境改善项目----哈密市第三次外部环境监测报告》。

2、项目概况

2.1 项目背景

在中亚地区区域经济合作、西部大开发、中国加入世界贸易组织和国家经济战略性调整的新形势下，新疆依靠其丰富的资源、独特的地理条件、以及巨大的区域市场，抓住机遇，寻求更大的发展空间、以及区域位置优势，利用其便利的交通条件，加强同祖国内地、中亚地区及其以西地区的交流与往来。

哈密市地处东天山南麓，素有“西域咽喉，东西通道”之称，是新疆的东大门，是新疆东部地区的中心城市。哈密市作为哈密地区行署所在地，是哈密地区政治经济文化科技及流通中心，市区面积 27.98km²，下辖 5 个街道办事处、3 个镇、15 个乡，总人口 51.2 万人，有 28 个民族。哈密市是以原材料工业为主，第三产业发达的新型工业城市，主要为化工、建材、纺织、皮毛、皮革、冶金、食品等，哈密市已逐渐完善医疗、教育等基础建设。

为了适应不断扩大的对外开放的形式的需要，哈密市加大了城市基础建设的力度，努力完善城市功能。经过多年来的努力，哈密市城市基础设施建设已取得了较大的成绩，市区城市道路初步形成了中心向外辐射的道路网。然而，随着城市的进一步发展，与之相适应的城市基础设施建设严重滞后，已经不能满足城市进一步发展的需要。由于现状道路分布不尽合理、配套设施不够完善，尤其是人民路部分还是土路，其余街巷路大多由于路面维修滞后，路面破坏较大，并无相应的配套设施，严重影响到周围居民的交通安全和身体健康。因此必须新建和改建部分道路，改善目前的道路交通环境和居民出行生活环境，促使城市发展协调。本项目建设将改善哈密市交通混乱、部分道路交通压力过大的现状，并且可促使沿线土地增值，带动经济。基础设施是城市发展的“硬件”，项目建设对哈

密市经济发展，社会稳定，各族人民生活水平的提高具有很大的促进作用。哈密市的发展关系到新疆的经济发

展、社会稳定、民族团结和昌盛，是新疆实施国家西部大开发战略的十分重要的一环。

2.2 项目总体情况

概况：

项目名称：亚行新疆城市交通及环境改善项目----哈密市

建设性质：城市道路改扩建

建设单位：哈密市建设局

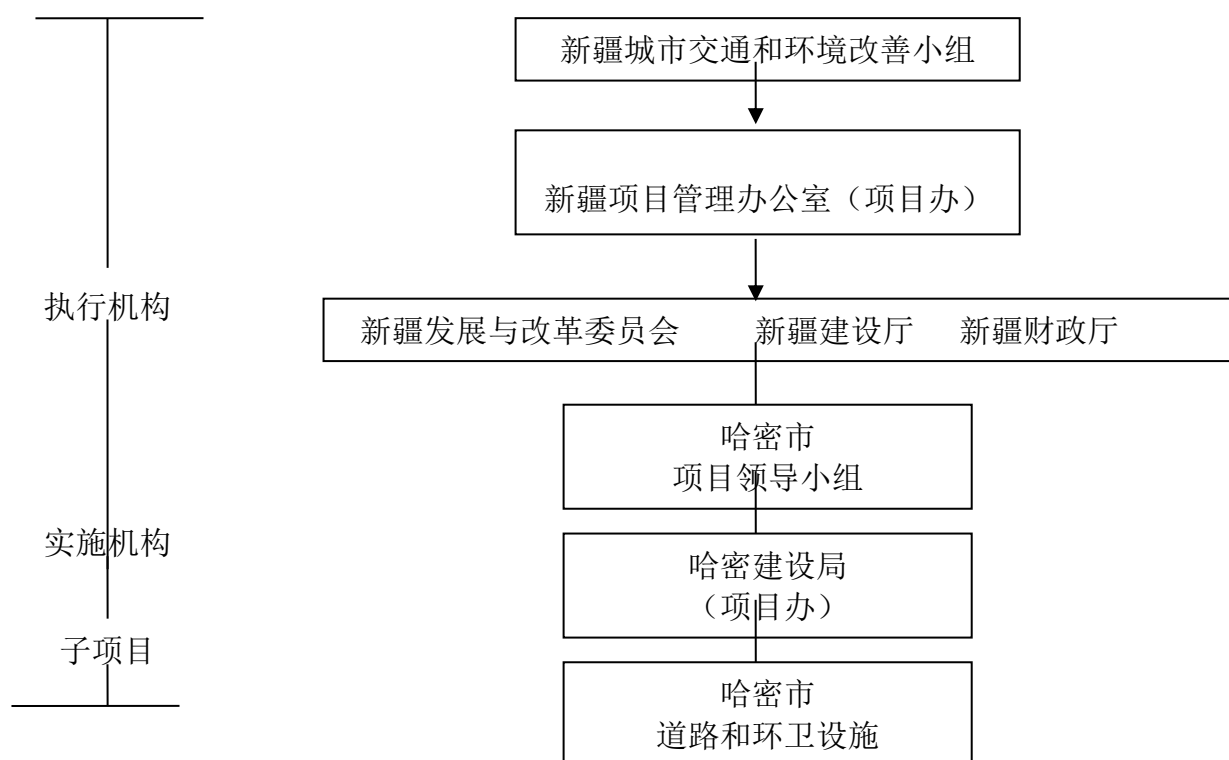
建设地点：新疆哈密市城区

建设规模及建设内容

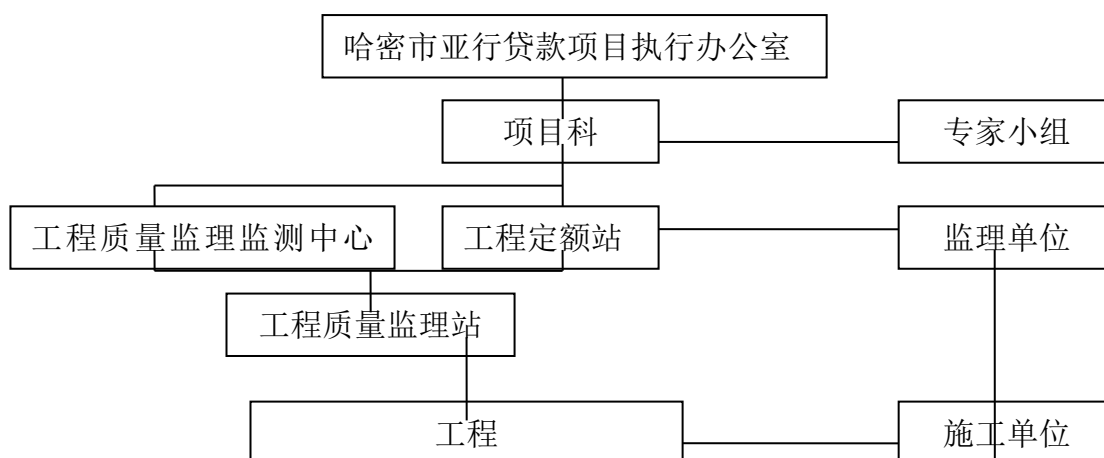
哈密市市区范围内的八一南路、八一北路和人民路 3 条主干路道路的道路工程、桥涵工程，以及相应的绿化、照明等道路附属工程；道路全长 9021.75m，其中机动车道面积 190314.29 m²，非机动车道面积 60001.56 m²，绿化带面积 12674.88 m²，人行道面积 35075.6 m²，道路总面积 27.05 万 m²，均为沥青混凝土路面；八一南路、八一北路各设置 1-4.0m 盖板涵一座，人民路设置 2-4.0m 盖板涵一座。本项目还包括与道路相应的附属配套设施，环卫工程，果皮箱 182 个，清洗车一辆，道路清扫车 2 辆。

2.3 组织机构

亚行新疆城市交通与环境改善项目哈密市项目管理机构下图：



技术管理图



3、环境管理措施

3.1 环境管理的目的

通过对项目中的各个子项目进行项目管理，防止施工期和营运期环境污染，尽量降低本项目在实施过程中带来的环境负面效应，最终达到哈密市城市环境改善的目的。

3.2 环境管理措施

根据环境保护主管部门和各子项目环境影响报告书的要求，该项目采取的环境管理措施具体见表 3-1.

表 3-1 环境管理措施

项目阶段	影响要素	环境影响	改善措施和管理安排
施工期	水	施工冲洗废水和施工人员的生活污水	施工区内设置 1 座废水沉淀池，洗涤等废水经沉淀后循环利用；设置 1 座简易化粪池，生活污水经化粪池处理后就近排入城市污水管网，送入污水处理厂集中处理
	气	项目施工和运输扬尘	在项目施工期间，施工单位应配置洒水车，对施工路段和施工便道洒水；路基应及时分层压实并注意洒水降尘；用篷布遮盖运送散装含尘物料的车辆；运输砂石料的车辆限制超载以免洒漏；管道铺设尽量采用分段施工，完工后及时填埋，尽快恢复路面交通，避免阻塞以及挖土方产生扬尘；在道路两侧适宜种树植树绿化。
		机动车辆和施工机械的尾气污染	良好的维护，使机动车辆和机械尾气排放标准符合标准。
	噪声	施工机械设备和运输车辆的噪声	合理选择施工机械设备、施工方法；施工机械要注意保养和合理操作，避免设备性能减退而使噪声增加，并对各种施工机械采取减震、隔声措施；合理安排施工作业时间，施工尽量安排在白天，如因工程本身质量要求，不能避开夜间(00:00-08:00)施工时，必须报当地环保局批准，采取应急防范措施；对学校等环境敏感点的路段，尽量安排在暑期施工，降低噪声对其的影响；强化施工现场的声环境管理，在建筑材料运输过程中，车辆行驶至敏感点附近时车速要降至 20km/h，禁止鸣笛。
	固体废物	施工弃土和垃圾等	弃土需要及时清运至哈密市垃圾处理厂；建议在施工营地设置临时垃圾桶，及时收集垃圾并定时清运至哈密市垃圾填埋场处理。

	生态	施工占用土地	在道路及配套工程施工中合理使用临时占地，缩短占用时间；工程竣工后应及时覆土恢复地表植被；合理规划，做好土石方的纵向调运，严格按照设计进行取弃土，取弃土场在工程结束后应及时进行生态恢复；合理安排施工进度，分片分时安排各道路修建工程，加大后期生态恢复的工作量。
		水土流失	对于占用土壤肥力较高的农田地段，在挖掘时应将表层土坯(30cm)保留，施工完毕后用于道路两侧绿化，从而减少水土流失影响；注意水土保持工作，对工程弃土加强综合利用，不能利用的应及时清运，避免降雨造成水土流失；严禁乱倾倒施工中产生的废弃物，做到定点存放，及时外运处置，避免污染土壤；对所砍伐林木采取“伐一补一”的措施，在异地进行补种。
营运期	水	雨、雪	路面的初期雨水的径流引入道路两侧，进入城市雨水管网，然后进入污水处理厂；尽量减少融雪剂的使用，采用人工或机械清扫方式，避免融雪剂对环境造成的污染。
	气	汽车尾气	汽车尾气的消减和控制面广而复杂，应做为城市的总体战略来考虑。
	噪声	机动车辆	加强道路两侧绿化，在敏感地带设禁止鸣笛警示牌和减速带
	固体废物	废渣	养护中产生的沥青废渣，首先考虑综合利用，对于无利用价值的，建议考虑处置在当地环保主管部门指定地点。

4、环境保护目标

根据亚行贷款新疆城市交通及环境改善项目《哈密市环境影响报告书》环境管理计划，针对工程建设期间（产生的施工废水和生活污水、粉尘和扬尘、噪声、固体废物、对土地植被的影响）和项目建成试运营期间（产生的汽车尾气、噪声）等环境影响因素进行外部环境监测。本次外部环境监测为第三次监测主要针对运营期间环境影响因素进行监测，主要涉及的项目环境保护目标如下：

表 4-1 项目环境保护目标一览表

序号	环境要素	环境保护目标	环境功能
1	水环境	石城子河	III类
2	大气环境	地震局	二级
3	声环境-敏感点	人民路周边敏感点	1、2 类
4	声环境-道路交通噪声	人民路	4a 类

5、本次环境监测具体工作内容

根据亚行贷款新疆城市交通与环境改善项目环境影响报告书中确定的环境敏感目标与项目建成后的主要环境影响，结合实际情况及第一次外部环境监测结果，我局对目前实施的亚行贷款新疆城市交通与环境改善项目人民路项目进行了第三次实际现场调研与环境监测。本项目外部环境监测实施的环境监测工作内容如下：

1、实施监测的具体点位与时间根据项目的现场实际内容和路线情况确定,同时参照第一次、第二次外部环境监测点位。

2、监测点位重点放在较为敏感的地段如居民区、学校等。在覆盖环境影响报告书中提及的保护目标的同时，结合道路地点的人口密度、工程情况、运营状况等情况，选择具有代表性的地点布设监测点位。

3、监测的同时简要记录当时现场项目运营期间主要情况、项目周边环境变化等内容。

5.1 地表水环境监测

哈密石城子河地表水水质监测

监测项目：流量、pH、CODCr、CODMn、BOD5、NH3-N、SS、总磷、总氮、氰化物、挥发酚、六价铬、硫化物、石油类、溶解氧、阴离子表面活性剂、类大肠菌群、水温、矿化度、电导率、氯化物、氟化物、硫酸盐、硝酸盐、铜、铅、镉、砷、汞、锌、硒共计 30 项。

监测点位：哈密石城子河。

监测时段：2013 年 05 月 06 日。

5.2 大气环境监测

监测项目：SO2、NO2、PM10。

监测布点：在人民路周边地震局楼顶。

监测时段：2013 年 5 月 06 日-5 月 12 日, 采用大气自动监测器连续 7 日 24 小时不间断采样监测，获得每日三项污染物的 24 小时均值。

5.3 噪声环境监测

测试仪器：检测仪器采用 AWA5680 型噪声统计分析仪。

监测布点：1、人民路道路交通噪声，选取人民路具有代表性路段进行监测。2、人民路项目附近 150m 范围内在噪声敏感点。第一次、第二次敏感点为陕西寺、恰瓦克清真寺，第三次增加已建成的哈密地区一中。

监测时段：2013 年 5 月 10 日对人民路及各环境敏感点环境噪声进行监测。环境噪声昼间监测时段为 10:00-13:00、16:00-19:00，夜间监测时段为 00:00-06:00。

6、监测方法和评价标准

根据国家有关技术规范，哈密市环境功能区划和亚行贷款新疆城市交通与环境改善项目环境影响报告书的相关内容，确定本次环境监测分析方法及评价标准，见表6-1。

表6-1 监测分析方法及评价标准一览表

环境要素	采样及分析方法	评价标准
地表水	《地表水和污水监测技术规范》(HT/T91-2002)、《水质采样方法设计规定》(GB12997-91)、《水质采样技术指导》(GB12998-91)、《水质采样、样品保存和管理技术规定》(GB12999-91)。	《地表水环境质量标准》(GB3838-2002)中Ⅲ类标准
大气	《环境空气质量标准》(GB3095-1996)	《环境空气质量标准》(GB3095-1996)二级
噪声	《声环境质量标准》(GB3096-2008)	《声环境质量标准》(GB3096-2008)中“1、2类区”标准、道路交通干线 4a 类标准

7、环境监测结果与评

7.1 地表水环境监测结果

表 7-1 哈密石城子河水质监测结果

序号	监测项目	监测值	评价	GB3838-2002
		控制断面		III类标准
1	PH	8.2	达标	6-9
2	悬浮物	204	/	/
3	矿化度	156	/	/
4	溶解氧	8	达标	≥5
5	COD _{Mn}	2	达标	≤6
6	BOD ₅	1	达标	≤4
7	COD _{Cr}	8	达标	≤20
8	氟化物	0.32	达标	≤1.0
9	氯化物	13.4	达标	≤250
10	硝酸盐	1.06	达标	≤10
11	硫酸盐	57.2	达标	≤250
12	电导率	32	/	/
13	总磷	<0.01	达标	≤0.05
14	总氮	0.82	达标	≤1.0
15	石油类	< 0.01	达标	≤0.05
16	硫化物	< 0.002	达标	≤0.2
17	氨氮	< 0.025	达标	≤1.0
18	挥发酚	< 0.001	达标	≤0.005
19	六价铬	< 0.004	达标	≤0.05
20	氰化物	< 0.001	达标	≤0.2
21	铜	< 0.05	达标	≤1.0
22	砷	< 0.5	达标	≤0.05
23	汞	< 0.025	达标	≤0.0001
24	铅	< 0.1	达标	≤0.05
25	锌	< 0.05	达标	≤1.0
26	镉	< 0.1	达标	≤0.01
27	硒	< 0.001	达标	≤0.01
28	阴离子表面活性剂	< 0.05	达标	≤0.3
29	粪大肠菌群	<2	达标	≤10000
30	流量(m³/s)	0.76	/	/

注：PH 为无量纲，监测值砷、汞、铅、镉计量单位为 ug/L，粪大肠菌群单位为个/L，其余项目为 mg/L。

由监测结果可知，哈密石城子河水质所监测因子均满足国家《地表水环境质量标准》（GB3838-2002）中 III 类标准，属于清洁未受污染水质。

7.2 声环境监测结果

本次对本项目人民路及路段各敏感点进行了监测，参照《声环境质量标准》(GB3096-2008)道路交通噪声的监测标准。

表 7-2.1 噪声监测结果

序号	敏感点名称	所在路段	距路肩(m)	等效声级(dB)		
				上午	下午	夜间
1	陕西寺	人民路	20	47.3	47.7	43.7
2	恰瓦克清真寺	人民路	6	48.2	48.8	43.9
3	地区一中	人民路	20	49.4	50.2	44.8

表 7-2.2 噪声监测结果

序号	点位	测量时段	车流量(辆/小时)	等效声级(分贝)	标准声级	评价结果
1	人民路	昼间	1053	60.6	70	达标
2	人民路	夜间	33	50.7	55	达标

按《声环境质量标准》(GB3096-2008)II 级标准（昼间 60dB，夜间 50dB），由上表可知在人民路周边敏感点位昼夜等效声级均在国家 II 级标准限值之内，同时优于 I 级标准。

人民路道路交通噪声强度等级为一级（好）

7.3 大气环境监测结果

表 7-3 大气污染物监测结果

监测日期	采样地点	分析项目 单位 (mg/m ³)			环境空气质量
		二氧化硫	二氧化氮	可吸入颗粒物	
2013年5月6日	地震局楼顶	0.013	0.011	0.097	II级（良）
2013年5月7日	地震局楼顶	0.017	0.013	0.049	I级（优）
2013年5月8日	地震局楼顶	0.010	0.010	0.084	II级（良）
2013年5月9日	地震局楼顶	0.015	0.024	0.048	I级（优）
2013年5月10日	地震局楼顶	0.012	0.032	0.061	II级（良）
2013年5月11日	地震局楼顶	0.015	0.020	0.075	II级（良）
2013年5月12日	地震局楼顶	0.020	0.010	0.071	II级（良）

评价结果：大气常规污染物二氧化硫、二氧化氮、可吸入颗粒物的单项污染指数见表 7-4。

表 7-4 环境空气三项污染物污染指数 单位 mg/m ³			
监测项目	平均结果	标准值	单项污染指数
二氧化硫	0.015	0.15	0.10
二氧化氮	0.017	0.12	0.14
可吸入颗粒物	0.069	0.15	0.46

由表 7-3、7-4 可知，人民路附近地震局楼顶的城市空气环境质量自动监测点位监测的二氧化硫、二氧化氮、可吸入颗粒物日均浓度监测值均满足《环境空气质量标准》(GB3095-1996)二级标准，未出现超标现象，环境空气质量良好。

7.4 小结

通过本次现场实际调研和环境监测，哈密市亚行新疆城市交通及环境改善项目人民路段在建成运营过程中遵照项目环境影响报告书中的相关要求，已经采取的环境管理措施和达到的效果。

表 7-5 人民路-运营期环境管理实施情况			
序号	环境管理	环境保护措施	实施效果
1	生态环境	1、公路运营期间，恢复植被和对道路进行绿化，并对道路沿线进行绿化。 2、保障道路附属设施的清洁，增强道路附属设施与周围景观协调。	道路两侧绿化良好
2	声环境	1、加强道路两侧绿化，特别是敏感点处。 2、合力制定道路两侧土地利用规划。 3、控制大型车等噪音污染较重的车辆上路，在敏感点位设置禁止鸣笛等标志。	人民路周边敏感点监测值满足国家标准二类区域声环境质量标准，不影响居民正常生活。
3	大气环境	1、制定和完善机动车尾气控制法规，加强机动车尾气控制管理。 2、逐步改进汽车性能，安装汽车尾气净化装置，使用无铅汽油等方式减少污染物的绝对排放量。	对周边空气环境质量影响很小

		3、大力发展公共交通，减缓汽车增速。 4、加大绿化面积。	
4	水环境	1、路面初期雨水的径流引入道路两侧，进入城市管网，然后进入城市污水处理厂。 2、降雪均采用人工或机械清扫方式，减少融雪剂的使用	对哈密市饮用水环境不产生影响
5	固体废物	道路维修产生的沥青渣，按当地环保部门要求严格控制，可利用部分回收，不可利用集中处理	不对外环境产生影响

8、结论与建议

通过第三次对哈密市亚行新疆城市交通及环境改善项目进行外部环境监测表明，对于人民路，项目建设单位已基本要求落实了项目环境影响报告书提出的相应项目环境管理措施，对于项目运营过程中可能会对环境产生的不利影响给予了充分的重视，通过目前所执行的外部环境监测结果来看，项目人民路路段在运营过程中已采取相应的措施，尽可能的将环境不利影响减少到最少。本次外部环境监测得出的结论如下：

（1）环境空气质量

人民路建成后，汽车尾气是沿线空气污染物的主要来源。相较第一次、第二次外部环境监测结果本次监测所测得空气中二氧化硫、二氧化氮浓度变化不大属正常波动变化且均在国家标准范围之内，可见周边空气环境受人民路通车影响较小。运营期间限制大型车辆、拖拉机、老旧淘汰等尾气污染严重车辆上路，鼓励哈密市车辆改气，同时道路两侧的绿化、栽种的可吸收或吸附汽车尾气中污染物的乔木、灌木及草坪等措施，有效地控制汽车尾气对环境空气的影响。

（2）声环境

人民路建成后，运营期间不同行驶状态和不同车型的车辆产生的噪声强度也不同，随着车辆的增加，产生的噪声对路两侧声环境影响也随之增加。通过与第一次、第二次外部环境监测的比较，发现第三次监测期间昼间车流量增加，监测数据较第二次下降了**4.9dB**。同时周边敏感点昼夜噪声增长均小于**3dB**。说明人民路项目对噪声的影响进行了有效的控制。特别是大型车辆、拖拉机

限行，敏感点路段限速、禁止鸣笛，绿化带后续建设等噪声控制措施取得一定效果。

（3）水环境

人民路进入运营后，路面雨水径流是公路沿线水环境污染的主要形式。哈密市降水稀少，蒸发十分强烈，除非发生强暴雨，否则地面很难形成径流。道路沿线通过降雨形成的径流将落在路面上面，并通过路面排水系统排出道路系统进入城市管网，不会对沿线水体造成影响。

建议：

- 1、继续加强道路两侧植被恢复和绿化工作，保障道路附属设施的清洁，增强道路附属设施与周边环境的协调性。
- 2、建立和完善道路、管理制度，做好限速、限行管理工作。

附 表

附表 1 环境空气评价标准（GB3095-1996 中的二级标准）

污染物	日均浓度值 mg/m ³	小时浓度值 mg/m ³
SO ₂	0.15	0.50
NO ₂	0.12	0.24
PM ₁₀	0.15	-----

附表 2 城市区域环境噪声标准（GB 3096-2008） 单位：dB(A)

功能区	0 类	1 类	2 类	3 类	4a 类	4b 类 *
昼间	≤50	≤55	≤60	≤65	≤70	≤70
夜间	≤40	≤45	≤50	≤55	≤55	≤60

* 注：根据 GB 3096-2008，2011 年 1 月 1 日前的既有铁路干线两侧区域不通过列车时的环境背景噪声限值执行 4a 类区标准，所以本报告将不加区别地将 4a 类区和 4b 类区通称为 4 类功能区，执行昼间 70dB(A)和夜间 55 dB(A)的限值。

附表 3 道路交通噪声强度等级划分 单位：dB(A)

等级	一级	二级	三级	四级	五级
昼间平均等效声级	≤68.0	68.1~70.0	70.1~72.0	72.1~74.0	>74.0
夜间平均等效声级	≤58.0	58.1~60.0	60.1~62.0	62.1~64.0	>64.0

道路交通噪声强度等级“一级”至“五级”可分别对应“好”、“较好”、“一般”、“较差”和“差”。

附表 4 地表水、地下水评价标准值 单位：mg/L

项目	《地表水环境质量标准》 (GB3838—2002)中的Ⅲ类	《地下水质量标准》 (GB/T14848—93)中的Ⅲ类
PH（无量纲）	6—9	6.5—8.5
溶解氧	≥5	/
COD _{Mn}	≤6	≤3.0
五日生化需氧量	≤4	/
氨氮	≤1.0	≤0.2
氟化物	≤1.0	≤1.0
铜	≤1.0	≤1.0
锌	≤1.0	≤1.0
硒	≤0.01	≤0.01
砷	≤0.05	≤0.05
汞	≤0.0001	≤0.001
铅	≤0.05	≤0.05
镉	≤0.005	≤0.01
六价铬	≤0.05	≤0.05
氰化物	≤0.2	≤0.05
挥发酚	≤0.005	≤0.002
石油类	≤0.05	/
硫化物	≤0.2	/

溶解性总固体	/	≤1000
总硬度	/	≤450
硫酸盐	≤250	≤250
氯化物	≤250	≤250
COD _{Cr}	≤20	/
总磷	≤0.05（湖、库）	/
总氮	≤1.0	/
亚硝酸盐氮	/	≤0.02
硝酸盐氮	≤10	≤20
铁	≤0.3	≤0.3
锰	≤0.1	≤0.1

注：PH 为无量纲，监测值砷、汞、铅、镉计量单位为 ug/L，粪大肠菌群单位为个/L，其余项目为 mg/L

亚洲开发银行贷款
新疆城市交通和环境改善项目
贷款号：2526-PRC

奎屯市外部环境监测报告

2013年8月

1 任务来源及监测目的

根据亚行贷款——奎屯市城市交通和环境改善项目中的环境管理计划和相关要求，我站再次接受奎屯市建设局的委托，依据国家各种规范、标准，以及亚行的安全政策，针对项目各阶段建成试运营期间环境影响因素进行监测；评估建成试运营期环境保护措施的效果，是否符合环境保护法律法规中的要求，现我站根据 2013 年 6 月的现场实地勘察和现场监测情况，编制完成《奎屯市城市交通和环境改善亚行贷款项目 2013 年上半年度外部环境监测报告》。

2 项目概况

2.1 项目背景

奎屯市是北疆地区陆路交通、邮电、通讯中心，以商贸、金融业以及加工业为主导产业的北疆区域中心园林城市，乌奎高速、北疆铁路的建成促进了奎屯经济的发展，随着精伊霍铁路、奎赛高等级公路的建设，奎屯的经济发展必将向前迈一大步，其中心城市的作用越来越突出，城市的辐射和集聚能力越来越强。城乡之间，城市各区间的经济联系，信息交流、交通往来和人员流动更为频繁。这就对城市的交通条件提出了更高的要求。城区现状道路大部分在原土路、砂石路面上升级而来，道路结构层薄、路幅窄，标准低。改革开放后，特别是在“八五”、“九五”间，市政府加快了道路建设力度，新建了城区部分道路，使城市交通条件有所改善。但其建设速度远低于交通量增长所需的速度。因此改造市区道路，加强中心城市与周围区域的联系是非常必要的。

目前奎屯市城市路网虽然已基本形成骨架，但并未完善，部分路段由于等级低、路况差，至使车流过份集中于市中心，加上老城区人口密集，建筑拥挤，商业网点集中，使道路超负荷运行。而根据城市总体规划，城市向东部和西部发展已是必然之势。城市建设要发展，基础设施必须先行。因此新建、扩建部分道路是非常必要的。

2.2 组织机构

本项目组织机构图如下：

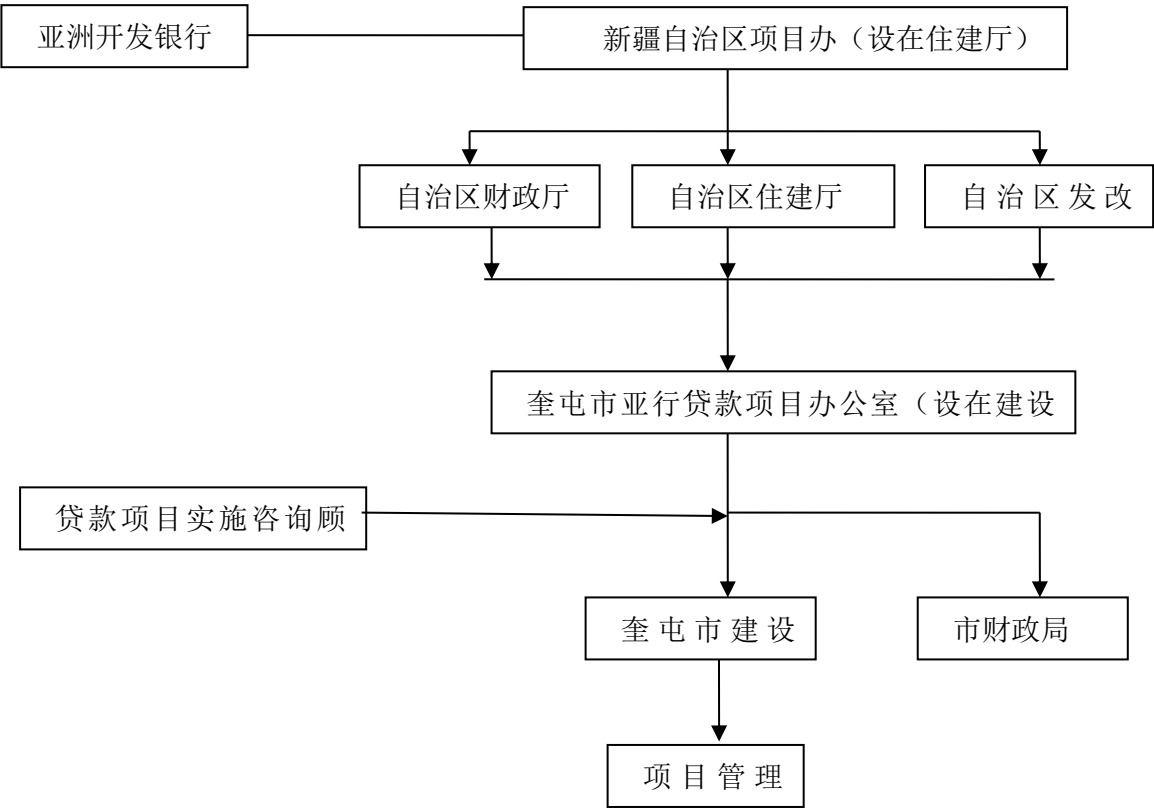


图 2-1 亚行贷款项目组织机构图

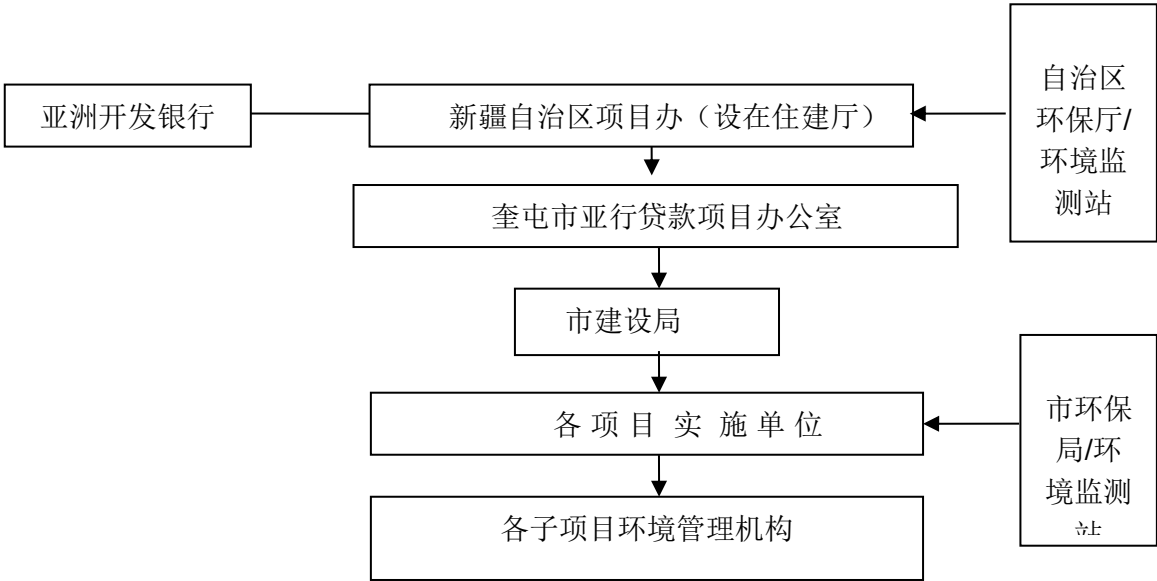


图 2-2 环境管理组织机构图

2.3 项目工程实施进度

本次奎屯市城市交通和环境改善项目目前工程实施进度一览表 2-1（截止 2013 年 7 月）：

表 2-1 奎屯市城市交通和环境改善项目目前工程实施进度一览表（截止 2013 年 7 月）

序号	项目名称	施工路段	施工时间	2013 年 7 月 累计投资	截止 2012 年 7 月完成内容
1	团结南街	北京路—火车站	2010 年 4 月 25 日— 2013 年 7 月 13 日	1166.2 万元	完成施工全部 内容
2	北京东路	玛纳斯街—鄯善 街		1065 万元	
3	乌鲁木齐东路	玛纳斯街—鄯善 街		980 万元	
4	奇台西路	塔城街—托里街		160 万元	
5	塔城街	南环路—北京西 路		472.6 万元	
6	呼图壁街	库尔勒路—乌鲁 木齐路	2010 年 3 月-2013 年 7 月 13 日	293 万元	完成主路部分 的施工，主干 道已通车运 行，部分非机 动车道及人行 道已经施工完 毕。
7	乌苏街	南环路—乌鲁木 齐路	2010 年 3 月 15 日— 2013 年 7 月 13 日	360.5 万元	完成施工内容 （主干道已经 通车运行，部 分路段人行道 已施工完毕）
8	乌鲁木齐西路	托里街—217 国 道		932 万元	
9	库尔勒路	塔城街—托里街		258 万元	
10	喀什路	塔城街—托里街		482.00 万元	
11	和丰街	阿克苏路—乌鲁 木齐路		368.5 万元	
12	额敏街	南环路—北京西 路		384.85 万元	
13	西一街	喀什西路—北京 西路			

3 环境管理措施

3.1 环境管理的目的

通过对项目中的各个子项目进行项目管理，防止施工期和营运期环境污染，尽量降低本项目在实施过程中带来的环境负面效应，最终达到奎屯市城市交通和环境改善的目的。

3.2 环境管理措施

根据环境保护主管部门和项目环境影响报告书的要求，项目采取的环境管理措施具体见表 3-1。

表 3-1 奎屯市城市交通改善工程项目环境管理措施

项目阶段	影响要素	环境影响	改善措施和管理安排
营运期	气	汽车排放的废气	(1) 发展燃汽汽车，减少尾气污染 (2) 安装机动车尾气控制装置 (3) 加速老旧车淘汰 (4) 大力发展公共交通，减缓汽车速度 (5) 加强建设路段的养护，加强交通管理 (6) 制定和完善机动车尾气控制法规，加强机动车尾气控制管理
	噪声	交通噪声	(1) 不得在路面 150m 范围内建居民区及学校。 随着经济的发展和汽车工业制造技术水平提高，可以逐步提高汽车噪声排放标准，从而可以逐步降低道路交通声水平。 (2) 车辆经过学校周围等路段敏感点时行驶车辆禁止打喇叭以免打扰学生正常上课带来不便，而且要缓慢车速避免交通事故的发生。 (3) 对学校、医院、机关、住宅等需要保持安静的噪声敏感建筑物进行定期检测，若发现噪声超标，要采取必要的防范措施，避免学校师生及学生学习生活受到外界噪声影响。
	生态环境	植被恢复和道路绿化	(1) 绿化：加强植被的恢复和道路绿化工作。 (2) 道路附属设施：保障道路附属设施的清洁，增强景观协调性

针对在上一报告期出现道路交通噪声值夜间超标现象。项目环境管理机构及时与环保局联系沟通项目环境监察事项，并及时委托有资质的监测机构进行了外部环境监测。在本报告期主要采取了以下措施，有效控制了超标路段夜间道路交通噪声：（1）在环境敏感点前面安装声屏障或其它措施、定期监测噪声；（2）改善交通管理，加强道路维护和车辆保养，严格限速，完善公交管理；（3）在超标路段两侧种树，特别是环境敏感点（小区、学校、医院、宾馆等）附近，提高绿化率；（4）在学校附近设立上课时间段禁止鸣笛标志。

3.3 环境相关的约定遵守情况

1、项目实施单位严格按照所有适用的国家和地方环境法律法规、亚行的《环境政策》（2002），以及国家、新疆和当地关于环境保护、健康、劳动和职业安全方面的其它法律法规和标准建造、运行、维护并监测项目设施，针对项目的设计和施工合同、运行指导方针和经过核准的环境影响评价报告中详述的所有环境缓解和监测措施制定和实施环境监测和环境管理措施。

2、培训及能力建设情况：为准备实施好本亚行项目，奎屯市相应成立了子项目办，有专人负责项目环境方面的事务，并建立了相关管理制度。2009年11月3日至5日亚行驻中国代表处为新疆项目提供了环境保护等方面的业务培训，使新疆各级项目管理人员进一步了解和熟悉了亚行贷款环境保障政策的相关规定和执行程序，提高了业务素质。2010年10月新疆项目办组织各子项目区人员到上海参加由亚行东亚局和上海同济大学建筑与城市规划学院合作举办的“亚太城市可持续发展最佳实践研讨会”，会议为期2天半，进行有关污水污泥治理、能源效率和城市规划的案例及城市管理方面的知识交流，并现场参观了被誉为最佳规划案例的上海朱家角镇；并赴亚行贷款上海市环境项目二期城市污水管理项目参观访问。参观了白龙港污泥处理工程子项目。2011年1月新疆项目办组织所有子项目单位在乌鲁木齐组织了亚行贷款环境监测等方面的

培训。2012年4月新疆项目办组织所有子项目单位在乌鲁木齐组织了亚行贷款环境监测等方面的培训。2012年5月新疆项目办组织所有子项目单位在安徽省合肥市进行国内培训，并赴亚行贷款合肥城市环境改善项目现场考察。2013年1月，新疆项目办组织所有子项目单位赴新加坡开展海外培训考察。培训内容包括技术讨论会、现场考察等，通过这些活动，达到了对基础设施建设、道路发展、城市规划、城市管理和公共服务研究和政策多方面的技术和管理角度的认知，对奎屯项目的更好开展和未来新疆的可持续发展有所帮助。2013年6月亚行驻中国代表处组织新疆所有子项目单位在乌鲁木齐举办亚行贷款项目管理培训班，主要针对项目管理过程中的涉及合同管理、合同变更、提款报账与支付、移民安置、少数民族发展、绩效管理等内容的培训。

4 环境保护目标

根据亚行贷款——奎屯市城市交通和环境改善项目环境管理计划，针对项目建成运营期间（产生的噪音、气味）等环境影响因素进行外部环境监测。本次环境监测涉及的项目环境保护目标如下：

表 4-1 项目环境保护一览表

序号	环境要素	环境保护目标	环境功能
1	大气环境	同济里小区	环境空气质量二级
		四中	
		原州建校	
3	声环境	同济里小区	城市环境噪声二类
		东轩苑电厂家属区	
		四中	
		五小	
		州奎屯医院	

		市七中	
		奎屯宾馆	
		原州建校	

5 本次环境监测具体工作内容

由于目前大部分路段主干道已经建成通车，未完成路段又因客观原因未完工，实际上项目在今年没有施工活动，所以现场实测应主要集中于运营期。根据该项目环境影响报告书中确定的环境敏感目标与项目运营期可能产生的主要环境影响，我站对目前实施的奎屯市城市交通改善项目进行了实际现场调查与环境监测，工作内容如下：

- 1、道路营运期产生的空气污染主要来自汽车行驶而产生的二次扬尘和汽车尾气，主要污染物为 TSP、NO₂ 和 CO,因此确定本次大气环境监测指标为 TSP、NO₂ 和 CO。
- 2、噪声监测分为道路交通噪声和敏感点噪声监测，同时记录车流量。
- 3、实施监测的具体点位根据项目已完成路段和路段敏感点确定。监测点位重点放在较为敏感的地段如居民区、学校等，在覆盖环境影响报告书中提及的保护目标的同时，选择具体代表性的地方布设监测点位。
- 4、监测按相应环境监测技术规范执行。

5.1 大气环境监测

监测项目：TSP、NO₂ 和 CO

监测布点：改扩建道路附近大气环境敏感点。

监测时段：连续监测三天，采样时间每天 TSP 不少于 12h，NO₂、CO 不少于 18h，每小时至少 45 分钟采样时间。具体见表 5-1

表 5-1 奎屯市城市交通改善项目大气环境监测情况表

项目名称	路段名称	监测点位	监测时间
团结南街	北京路—火车站	同济里小区	2013 年 6 月 12—14 日
乌鲁木齐东路	玛纳斯街—鄯善街	四中	2013 年 6 月 12—14 日
库尔勒路	塔城街—托里街	原州建校	2013 年 6 月 12—14 日

5.2 噪声环境监测

监测项目：等效 A 声级（Leq）。

监测布点：已完成 11 条道路两侧及附近 150m 范围内噪声环境敏感点。

监测时段：每天昼夜间监测 2 次，监测一天。

表 5-2 奎屯市城市交通改善项目噪声监测情况表

序号	项目名称	路段名称	交通噪声监测 点位	涉及敏感点 监测点位	监测时间
1	团结南街	北京路—火车站	鑫源宾馆	同济里小区	2013 年 6 月 12—13 日
2	北京东路	玛纳斯街—鄯善街	奎屯锦业纺织	东轩苑电厂 家属区	2013 年 6 月 12—13 日
3	乌鲁木齐东路	玛纳斯街—鄯善街	第四中学	四中	2013 年 6 月 12—13 日
4	奇台西路	塔城街—托里街	第五小学	五小	2013 年 6 月 12—13 日
5	塔城街	南环路—北京西路	叶林桃 31 号 楼	州奎屯医院	2013 年 6 月 12—13 日
6	乌苏街	南环路—乌鲁木齐 路	农林水牧局	市七中	2013 年 6 月 12—13 日
7	乌鲁木齐西路	托里街—217 国道	131 团酒厂	奎屯宾馆	2013 年 6 月 12—13 日
8	库尔勒路	塔城街—托里街	州建校	原州建校	2013 年 6 月 12—13 日
9	喀什路	塔城街—托里街	新公安局办公 楼	大丰和酒店	2013 年 6 月 12—13 日
10	和丰街	阿克苏路—乌鲁木 齐路	炮团	炮团家属区	2013 年 6 月 12—13 日

11	额敏街	南环路—北京西路	气象站	供热公司	2013年6月12—13日
12	呼图壁街	库尔勒路—乌鲁木齐路	职业中专	职业中专家属区	2013年6月12—13日
13	西一街	喀什西路—北京西路	西华苑统建房	西华苑统建房	2013年6月12—13日

6 监测方法和评价标准

根据国家有关技术规范，按照奎屯市环境功能区划和奎屯市城市交通改善环境影响报告书的相关内容，确定本次环境监测分析及评价标准，见表 6-1。

表 6-1 监测分析及评价标准一览表

环境要素	采样及分析方法	评价标准
大气	《环境空气 总悬浮颗粒物的测定重量法》（GB/T15432—1995）	《环境空气质量标准》（GB3095-1996）二级
	《环境空气 二氧化氮的测定 Saltzman 法》（GB/T15436-1995）	
	《空气质量 一氧化碳的测定 非分散红外法》（GB9801-1988）	
噪声	《声环境质量标准》（GB3096-2008）	《声环境质量标准》（GB3096-2008）2类区及 4a类区标准

7 环境监测结果与评价

7.1 大气环境监测结果

大气环境监测结果见表 7-1：

表 7-1 大气环境监测结果一览表

项目名称	路段	敏感点		污染物浓度(mg/m ³)		
		名称	与路中心距离	TSP	NO ₂	CO
团结南街	北京路—火车站	同济里小区	路东侧 150m	0.151	0.039	<1.25
乌鲁木齐东路	玛纳斯街—鄯善街	四中	路北侧 50m	0.243	0.061	<1.25
库尔勒路	塔城街—托里街	原州建校	路北侧 100m	0.101	0.045	<1.25
《环境空气质量标准》（GB3095-1996）二级标准限值				0.30	0.12	4.0
结果评价				达标		

7.2 噪声环境监测结果

1、噪声环境敏感点监测

本次对项目所涉及到的噪声环境敏感点进行了昼夜噪声监测，噪声环境监测结果见表 7-2：

表 7-2 环境敏感点噪声监测结果一览表 单位：dB（A）

测点号	名称	6 月 12 日		6 月 13 日	
		昼间	夜间	昼间	夜间
1#	同济里小区	52.3	48.5	54.2	44.5
2#	东轩苑电厂家属区	47.5	43.6	53.8	46.2
3#	四中	48.5	42.5	47.8	46.3
4#	五小	52.5	45.4	49.3	44.5
5#	州奎屯医院	54.3	48.1	52.7	46.6
6#	市七中	51.8	45.5	51.3	47.3
7#	奎屯宾馆	51.5	43.3	47.5	42.3
8#	原州建校	47.9	43.6	49.8	46.6
《声环境质量标准》（GB3096-2008）2 类区标准限值		60	50	60	50
结果评价		达标			

2、道路交通噪声监测

对已竣工完成的 11 条道路进行监测，监测结果表 7-3：

表 7-3 道路交通噪声监测结果一览表 单位: dB (A)

测点号	道路名称	路段名称	测点名称	6 月 12 日		6 月 13 日	
				昼间	夜间	昼间	夜间
1#	团结南街	北京路—火车站	鑫源宾馆	67.5	54.5	67.3	54.5
2#	北京东路	玛纳斯街—鄯善街	奎屯锦业纺织	67.2	54.7	65.4	54.2
3#	乌鲁木齐东路	玛纳斯街—鄯善街	第四中学	69.2	54.5	65.4	53.3
4#	奇台西路	塔城街—托里街	第五小学	56.7	49.5	62.5	45.2
5#	塔城街	南环路—北京西路	叶林桃 31 号楼	67.1	54.2	67.6	53.7
6#	乌苏街	南环路—乌鲁木齐路	农林水牧局	64.3	54.1	66.2	54.2
7#	乌鲁木齐西路	托里街—217 国道	131 团酒厂	67.2	54.8	69.3	54.5
8#	库尔勒路	塔城街—托里街	原州建校	64.6	54.2	62.5	54.8
9#	喀什路	塔城街—托里街	新公安局办公楼	60.4	45.5	62.4	48.7
10#	和丰街	阿克苏路—乌鲁木齐路	炮团	60.7	47.5	59.8	46.2
11#	额敏街	南环路—北京西路	气象站	63.8	43.6	59.7	46.6
12	呼图壁街	库尔勒路—乌鲁木齐路	职业中专	63.6	45.2	61.6	46.8
13	西一街	喀什西路—北京西路	西华苑统建房	62.5	46.6	59.2	45.2
《声环境质量标准》(GB3096-2008) 4a 类区标准限值				70	55	70	55
结果评价: 达标。所有监测时段和监测点都达到国家标准要求。							

7.3 监测小结

通过本次现场调查和环境监测, 奎屯市城市交通改善项目在实施过程中遵照项目环境影响报告书及环评批复中的相关要求, 已经采取的环境管理措施和达到的效果详见表 7-4:

表 7-4 项目环境管理实施情况及效果一览表

序号	污染源	采取的环境管理措施	监测情况	实施效果
1	汽车尾气	(1) 发展燃汽汽车，减少 尾气污染 (2) 加强建设路段的养 护，加强交通管理 (3) 大力发展公共交通， 减缓汽车速度 (4) 加速老旧车淘汰 (5) 制定和完善机动车 尾气控制法规，加强机 动车尾气控制管理	周围环境敏感区 NO ₂ 、CO 均达 到《环境空气质 量标准》 (GB3095- 1996) 二级	在车流量增加的 前提下，附近环 境空气质量未见 下降
2	道路交通噪 声	(1) 在相关路段设立禁 止鸣笛标志。 (2) 道路两侧种植绿化 带 (3) 加强建设路段的养 护，加强交通管理	达到《声环境质 量标准》 (GB3096- 2008) IV类区 标准	周围区域达到 《声环境质量标 准》(GB3096- 2008) II类区 标准
3	生态环境	(1) 绿化：加强植被的恢 复和道路绿化工作。 (2) 道路附属设施：保 障道路附属设施的清洁， 增强景观协调性	植被恢复和道路 绿化工作已完 成。	对周围生态环境 没有影响

8 监测结论与建议

通过再次对奎屯市城市交通和环境改善项目亚行贷款项目进行的外部环境监测表明，对于已经实施完成的各条道路改扩建项目，项目建设单位已基本按照项目环境影响报告书提出的相应项目环境管理措施予以落实；并多次与环境管理部门沟通，对于项目实施过程中对环境产生的不利影响予以充分的重视并与改善。通过目前所执行的外部环境监测结果来看，项目在实施过程中已采取相应的措施尽可能的将环境不利影响减少到最少。

在上一报告期出现道路交通噪声值夜间超标现象。在本报告期，项目环境管理机构及时与环保局联系沟通项目环境监察事项，并及时委托有资质的监测机构进行了外部环境监测。在本报告期主要采取了以下措施，有效控制了超标

路段夜间道路交通噪声：（1）在环境敏感点前面安装声屏障或其它措施、定期监测噪声；（2）改善交通管理，加强道路维护和车辆保养，严格限速，完善公交管理；（3）在超标路段两侧种树，特别是环境敏感点（小区、学校、医院、宾馆等）附近，提高绿化率；（4）在学校附近设立上课时间段禁止鸣笛标志。

本次外部环境监测得出的结论如下：

1、项目采取了相应环境管理措施后，对外环境和敏感点的大气环境和声环境影响较小；

2、在本报告期通过实施纠正行动，有效缓解了上一报告期部分路段附近交通噪声超标环境影响，所有监测时段和监测点都达到国家标准要求。

3、项目完工后及时进行了场地清理和绿化带恢复，保证了项目周围生态环境没有被破坏。

4、建议：

（1）、加强建设路段的养护，加强交通管理；控制车辆按限速行驶。

（2）、制定和完善机动车尾气控制法规，加强机动车尾气控制管理。

（3）、严格管控行驶车辆违规鸣笛行为。

亚洲开发银行贷款

新疆城市交通和环境改善项目

贷款号：2526-PRC

吐鲁番市外部环境监测报告

（第三期）

新疆吐鲁番地区环境监测站

2013 年 11 月

1 任务来源及监测目的

根据亚行贷款——吐鲁番市城市交通与环境改善项目环评报告及《亚行项目环评摘要（SEIA）》中的环境管理计划和相关要求，针对工程建设期间和项目建成试运营期间等环境影响因素进行日常监测。遵照降低项目负面影响的目标，依据国家各种规范、标准，以及亚行的安全政策，根据环境影响监测和数据分析，评估建设期间和建成试运营期：①环境保护措施的效果，是否符合相关法律法规中的要求；②环境影响的发展趋势；③项目环境管理计划的总体效果。我站在承担吐鲁番市城市交通与环境改善项目亚行外部环境监测的任务后，现我站根据2013年08月03日-10日的现场实地调查和现场监测情况，编制完成第二期《吐鲁番市城市交通与环境改善亚行贷款项目外部环境监测报告》。

2 项目概况

2.1 项目背景

吐鲁番地区位于新疆维吾尔自治区东部，是吐鲁番盆地的政治、经济、文化中心，是乌鲁木齐都市经济圈中的重要城市；是著名的历史文化名城和旅游名城，也是“城中有田、田中有城”的生态型园林城市和葡萄城。是古丝绸之路的交通咽喉，南北疆陆上交通和转换的枢纽，境内兰新铁路、312国道、吐-乌-大高速公路横贯东西，南疆铁路、314国道纵穿南北，“贯穿南北，东联西出”，吐鲁番地区已基本形成二横、二纵方格网状结构形式的雏形，交通战略地位极

为突出。然而，随着城市的进一步发展，城市基础设施建设严重滞后，已不能满足当前发展的需要。其中存在的问题有：由于受财力的限制，道路结构设计标准低，路基承载能力差，路面设计标准低，施工较简单，主要路段路面沥青厚度不够，路面不平整，车辆行驶状况差，严重影响道路的通行能力。路面破损，老化现象严重，道路功能不完善，城区内一些对外放射性道路通行能力不足，制约了城市对外的联系且道路照明、绿化、停车场、交通设施等附属设施匮乏。因此，必须新建和改建部分道路，改善目前的道路交通环境和居民的生活环境，使之与城市建设与发展相协调。

2.2 建设规模及内容

项目建设内容主要为道路工程，包括建设城市道路 12 条和改造城区部分街区巷道，其中老城区 3 条（文化西路、东环路和育才路）其总长度 3.1km；新区 9 条（火焰山路、丝绸路、绿洲路、产业园路、新高昌路、新木纳尔路、新幸福路、新光明路和新柏孜克里克路）总长度 18.7km，本项目共改造道路总长约为 21.8km，总面积 65.08 万 m²，以及相应配套附属设施建设等。

2.3 组织机构

本项目组织机构图如下：

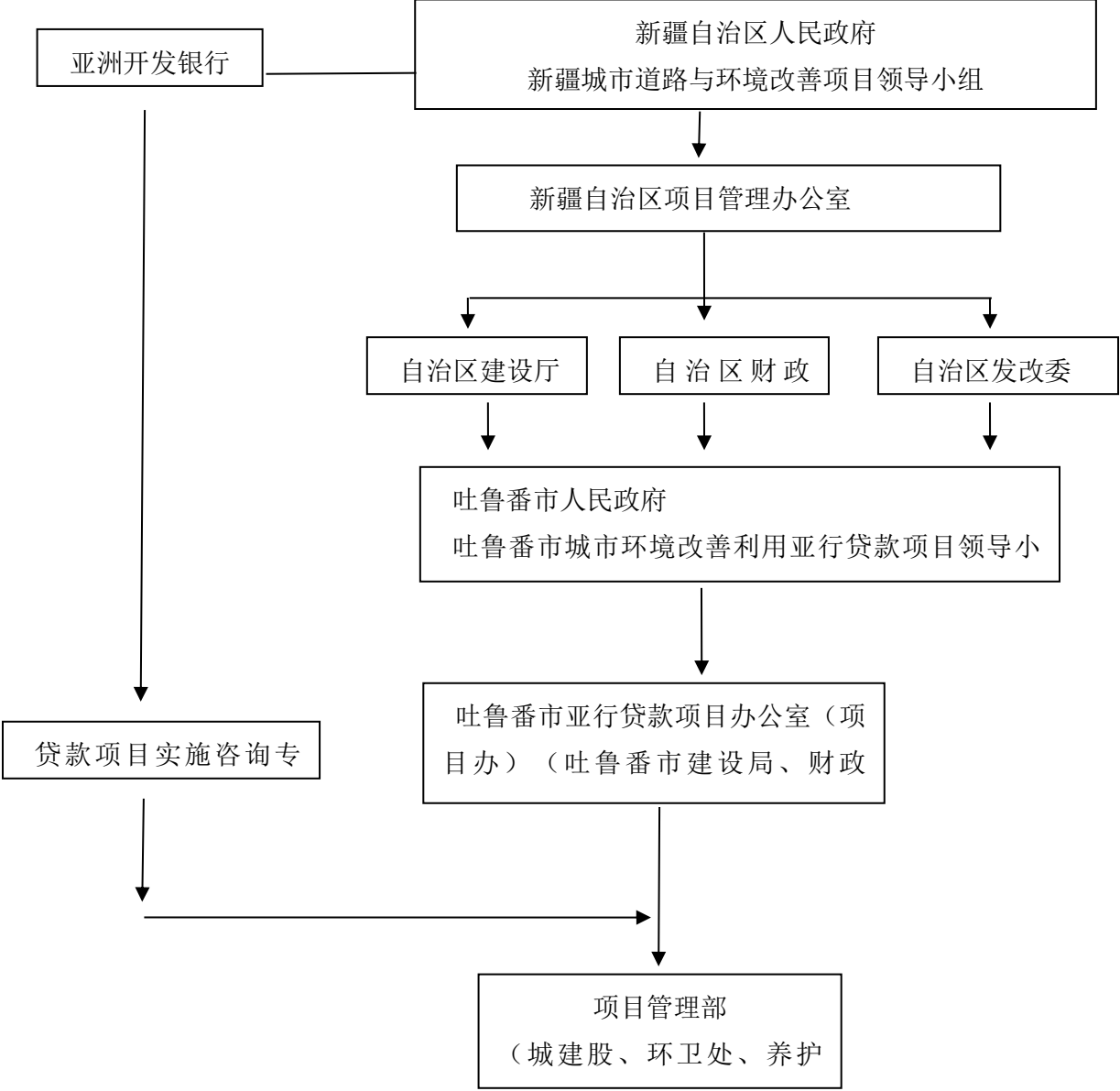


图 2-1 亚行贷款项目组织机构图

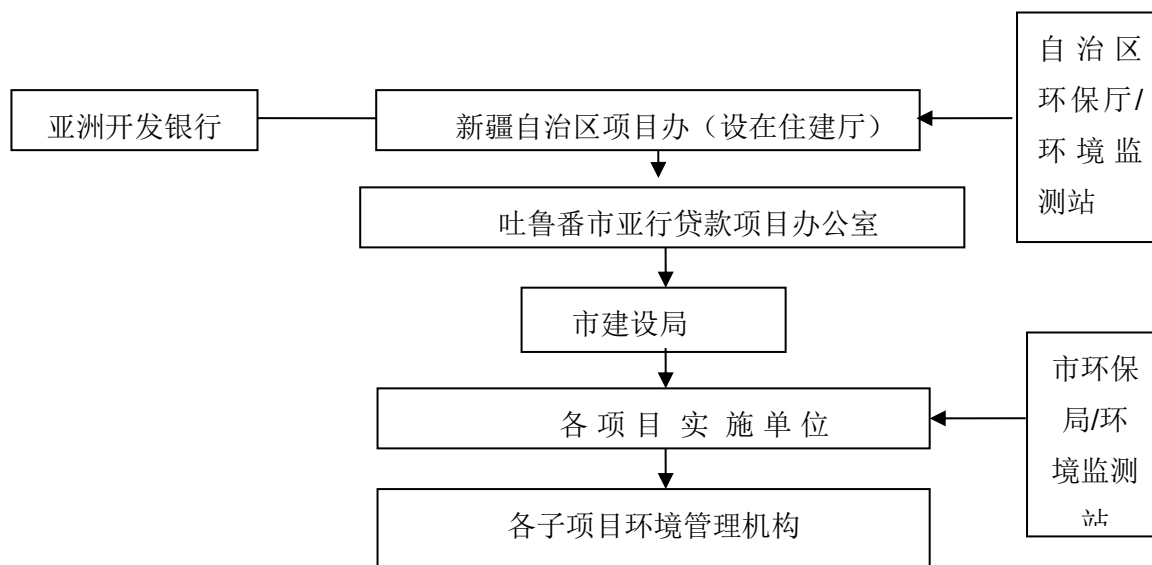


图 2-2 环境管理组织机构图

2.4 项目工程实施进度

项目截止 2013 年 11 月实施进度表 2-1。

表 2-1 项目建设进度表

序号	路名	实施时间	截止 2013 年 11 月实施进度	阶段	完成投资（万元）	2014 年 6 月底计划
1	绿洲路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	585	全部完工
2	火焰山路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	1570	全部完工
3	新光明路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已	运营期	960	全部完工

			经完成			
4	新高昌路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	1280	全部完工
5	产业园路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	760	全部完工
6	丝绸路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	1150	全部完工
7	新幸福路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	998	全部完工
8	新木纳尔路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	735	全部完工
9	新柏孜克里克路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	378	全部完工
10	东环路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已经完成	运营期	590	全部完工
11	育才路	2011 年 4 月	主车道铺油完成，实现通车，人行道、绿化带、路灯等附属设施已	运营期	110	全部完工

			经完成			
12	文化西路	2011 年 4 月	拆迁已经完成，未开工	招标完成	0	全部完工

3 环境管理措施

3.1 环境管理的目的

通过对项目中的各个子项目进行项目管理，防止施工期和营运期环境污染，尽量降低本项目在实施过程中带来的环境负面效应，最终达到吐鲁番市城市环境改善的目的。

3.2 环境管理措施落实情况

3.2.1 施工期环境管理

表 3-1 施工期环境管理措施

环境问题	施工期采取的环境管理措施
扬尘/空气污染	1) 施工期间随时洒水，每天不得少于 2 次，周围居民点较多时应加大洒水频率（主要在巷道施工时），在路基填充时，需洒水以压实材料，在材料压实后，将定期洒水，以防起尘。
	2) 粉状原材料如水泥、石灰堆放应有篷布遮盖。在进出砂石料场的主要运输道路及施工现场应配备洒水车，定期定时洒水，以减少装卸、运输砂石料产生的扬尘。
	3) 在施工时，路基应及时分层压实，并注意洒水降尘，管道铺设尽量采用分段施工，完工后及时填埋，尽快恢复路面交通，避免交通阻塞以及开挖土方产生扬尘。
施工营地	1) 在施工营地采取足够的措施，如提供垃圾箱和卫生处理设施，定期清理公厕的粪水。
	2) 垃圾收集在固定场所的垃圾箱内，并定期清理。
噪声	1) 严格执行工业企业噪声标准以防止建筑工人受噪声侵害，靠近高噪声源的工人将进行劳动保护，并限制工作时间。
	2) 靠近居民区施工时，高噪声的施工将禁止进行，可固定的机械要远离居民区。
	3) 加强对机械和车辆的维修，使它们保持较低的噪声。
生态环境	1) 尽量减少填挖土方。
	2) 加强施工人员的环境保护教育，严禁随意排放废物和破坏植被。

水土流失	1) 加强路基防护, 要建设道路排水工程。
	2) 弃土后要及平整场地, 恢复植被。
事故风险	1) 为保证施工安全, 在施工期临时在道路上安装有效照明设备和安全信号。
	2) 将采用有效的安全和警告措施, 以减少事故。
交通和运输	1) 将尽可能利用当地施工材料, 以避免施工材料的长途运输, 特别是土石方。
	2) 当施工期间道路堵塞时, 在与交通和公安部门协商后, 采取足够的引导交通的措施。
	3) 考虑在交通堵塞较少的季节, 进行材料的预先准备。

3.2.2 运营期环境管理

表 3-2 运营期环境管理措施

环境问题	运营期环境管理措施
运输管理	1) 对有毒有害化学品的运输, 将需要有交通部门颁发的 3 证一准运证、驾驶证和押车证。根据交通部规定所有运送危险品的车辆将有一个统一标志。 2) 公安和运输管理部门、消防部门将为运送危险品的车辆指定专门的运输路线, 危险品车辆只能停放在指定的停车场。
车辆管理	1) 加强车辆管理, 上路车辆要求必须符合国家汽车尾气排放标准, 并进行年检和定期检查。 2) 加强对宣传群众有关车辆产生空气污染、噪声及相关法规的教育。
道路维护	1) 加强道路维护, 保证车辆正常行驶, 减少汽车尾气和噪声的排放, 避免交通阻塞。 2) 合理安排路面维修时间, 避开高峰期。
噪声	根据监测结果, 在噪声超标的地方设立声屏障或地行交通管制。
排水系统的维护	定期进行排水的清淤, 以确保排水系统的正常运行。
环境监理	1) 有专人负责清理路面卫生, 及时清除路面障碍物保证交通安全, 由市环卫大队负责。 2) 定期维护、检查路标、警示牌和路灯照明, 保证行车畅通。 3) 保证道路两侧绿化带、隔离带和人行步道树木要生长良好, 造型植物保持优美形态, 长青旺盛, 由园林管理处负责。

4 环境保护目标:

根据亚行新疆城市交通及环境改善项目——吐鲁番地区环境影响报告书中确定的环境敏感目标, 结合实际施工进度, 其中除育才路、火焰山路及东环路三条道路涉及到环境敏感点外, 其余 9 条道路 (8 条通车, 一条尚未开工) 尚未涉及到环境敏感点, 因此我站对目前实施的亚行新疆城市交通及环境改善项

目中三条运营期道路（育才路、火焰山路及东环路）敏感目标进行了实际现场调研与环境监测，项目环境保护一览见表 4-1：

序号	环境要素	环境保护目标	环境功能
1	大气环境	滨湖小区	《环境空气质量标准》（GB3095-1996）二级
		32 团	
		葡萄乡	
2	声环境	火焰山路	《声环境质量标准》（GB3096-2008）中“2 类区”标准
		育才路	
		东环路	

5 本次环境监测具体工作内容：

项目道路建设均在市区内及近郊，经过实地考察，项目建设不涉及自然保护区、风景名胜区，但涉及到道路两侧分布的噪声、大气环境敏感点。

根据项目影响区的环境特点和工程环境影响特征，本项目计划只对项目的建设期和运营期进行必要的环境监测。

5.1 本项目环境监测实施的环境监测工作内容如下：

1、运营期监测的具体点位与时间根据项目的实际进度、现场内容和路线确定。

2、监测点位重点放在较为敏感的地段如居民区、学校等。

5.1.1、大气环境监测

监测项目：TSP、NO₂、CO；

监测布点：滨湖小区、32 团及葡萄乡；

监测时段：2013 年 08 月 03 日—08 月 10 日，连续监测七天，TSP 采样时间每天不少于 12h，NO₂ 采样时间每天不少于 18h，每小时至少 45 分钟采样时间，CO 采样时间每天不少于 18h，每小时至少 45 分钟采样时间。

5.1.2、噪声环境监测

监测项目：等效 A 声级 (Leq)。

监测布点：育才路、火焰山路及东环路附近居民区噪声环境敏感点。

监测时段：2013 年 08 月 03 日, 昼间 (18:30)、夜间 (23:30) 监测 1 次, 监测一天。

监测方法和评价标准:

根据国家有关技术规范, 亚行新疆城市交通及环境改善项目——吐鲁番地区环境影响报告书的相关内容, 确定本次环境监测分析方法及评价标准, 见表 5-1。

表 5-1 监测分析方法及评价标准一览表

环境要素	采样及分析方法	评价标准
大气	环境空气 总悬浮颗粒物的测定 重量法 (GB/T 15432-1995)	《环境空气质量标准》(GB3095-1996) 二级
	(HJ479-2009) 环境空气 二氧化氮的测定盐酸萘乙二胺分光光度法	
	(GB9801-1988) 《空气质量 一氧化碳的测定非分散红外法》	
噪声	《声环境质量标准》(GB3096-2008)	《声环境质量标准》(GB3096-2008) 中“2 类区”标准及“4a 类标准”

5.2 环境监测结果与评价

5.2.1 大气环境监测结果

运营期大气监测结果见表 5-2:

表 5-2 大气监测结果一览表 单位: mg/m^3

监测点位	监测日期	TSP	CO	NO ₂
滨湖小区	2013.08.03	0.186	0.6	0.022
	2013.08.04	0.192	0.7	0.033
	2013.08.05	0.210	0.5	0.049
	2013.08.06	0.258	0.6	0.043
	2013.08.07	0.126	0.8	0.030
	2013.08.08	0.140	0.8	0.023
	2013.08.09	0.165	0.7	0.030
32 团	2013.08.03	0.119	0.5	0.019
	2013.08.04	0.162	0.4	0.023

	2013.08.05	0.194	0.6	0.024
	2013.08.06	0.187	0.5	0.026
	2013.08.07	0.203	0.5	0.020
	2013.08.08	0.220	0.6	0.025
	2013.08.09	0.215	0.7	0.029
葡萄乡	2013.08.03	0.153	0.5	0.022
	2013.08.04	0.159	0.6	0.026
	2013.08.05	0.181	0.6	0.025
	2013.08.06	0.216	0.8	0.020
	2013.08.07	0.205	0.5	0.024
	2013.08.08	0.176	0.8	0.018
	2013.08.09	0.184	0.7	0.025
《环境空气质量标准》（GB3095-1996）二级限值		0.30	4.00	0.10

由表监测结果可知，育才路、火焰山路及东环路运营期附近所涉及到的大气环境敏感点 TSP、NO₂、CO 日均值均满足《环境空气质量标准》（GB3095-1996）二级标准，未出现超标现象。

5.2.2 噪声环境监测结果

本次对运营期的育才路、火焰山路及东环路所涉及到的交通噪声和噪声环境敏感点进行了昼、夜噪声监测，噪声环境监测见表 5-3：

表 5-3 噪声环境监测结果一览表 单位：dB(A)

监测点位	名称	噪声监测值	
		昼间	夜间
▲1 [#]	火焰山路	62.5	53.9
▲3 [#]	育才路	65.1	60.3
▲5 [#]	东环路	57.9	53.6
《声环境质量标准》（GB3096-2008）中“4a 类区”标准限值		70	55

监测点位	名称	噪声监测值	
		昼间	夜间
△2 [#]	火焰山路敏感点	43.5	42.1
△4 [#]	滨湖小区	53.2	51.4
△6 [#]	东环路敏感点	50.5	49.1
《声环境质量标准》（GB3096-2008）中 2 级标准		60	50

由表的环境噪声现状监测结果，可以看出育才路、火焰山路及东环路运营

期附近所涉及监测点位昼间噪声均达到《声环境质量标准》（GB3096-2008）中相关标准，东环路交通噪声和东环路、火焰山路敏感点夜间噪声达到《声环境质量标准》（GB3096-2008）中相关标准。夜间育才路未达到《声环境质量标准》（GB3096-2008）中 4a 类标准（超标 3.7-7.9dB），滨湖小区夜间噪声未达到《声环境质量标准》（GB3096-2008）中 2 级标准（超标 1.4dB），夜间超标主要原因是市民集中在夜间出行，加之育才路和滨湖小区紧临吐鲁番市人工湖水韵广场，人群活动车辆出行比较集中，这些因素导致了育才路和滨湖小区噪声夜间超标。

6 监测结论与建议

6.1 结论

通过本次对亚行新疆城市交通及环境改善项目—吐鲁番段中育才路、火焰山路及东环路运营期大气环境均符合国家相关标准限值。除育才路、滨湖小区夜间噪声超标外，其他道路噪声及敏感点噪声昼间和夜间均符合国家相关标准。

6.2 建议

（1）鉴于本次监测中出现的部分路段和居民区季节性夜间噪声超标情况，建议如下：

一是消减车辆噪声，建立和完善道路、交通管理制度。定期监测机动车噪声，对超标车辆实行强制维护，噪声达标才能上路行驶，逐步淘汰噪声较大的车辆。

二是严格限制行车速度，特别是夜间超速行驶；本项目道路沿线的环境敏感点，行驶车辆禁止在夜间鸣喇叭，打扰居民正常休息，且要降低车速避免交通事故的发生；定期保养、维修道路两旁的隔声设施，做好路面的维护保养，对受损路面及时修复；加强道路两侧绿化，尤其是学校和医院等声环境敏感点

处。

三是加强公众宣传教育和管理，尽可能减少季节性社会生活噪声超标扰民。

四是对超标路段、居民区等噪声敏感区应进行定期监测，若发现噪声超出标准，要采取必要的防范措施（例如禁止鸣笛等），避免居民生活受到外界噪声影响。

（2）运营期间，做好交通安全防范措施。在沿线上环境敏感点处设置严禁停车的标志牌，严禁运输化学危险品的车辆在此停靠，并在事故多发地段设立醒目的提示板或警告牌，公布事故急救电话，避免发生交通事故。

（3）道路营运期间，应继续进行植被恢复治理工作，并在道路沿线市区和乡镇路段进行植被的绿化美化工作。对交通便道、生活驻地、物资储存场所、取弃土场等迹地，清理平整，以利于植被恢复。