

**КЫРГЫЗ РЕСПУБЛИКАСЫНЫН
ӨКМӨТҮНӨ КАРАШТУУ КУРЧАП
ТУРГАН ЧӨЙРӨНУ КОРГОО
ЖАНА ТОКОЙ ЧАРБАСЫ
МАМЛЕКЕТТИК АГЕНТТИГИ**



**ГОСУДАРСТВЕННОЕ АГЕНТСТВО
ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И
ЛЕСНОГО ХОЗЯЙСТВА
ПРИ ПРАВИТЕЛЬСТВЕ
КЫРГЫЗСКОЙ РЕСПУБЛИКИ**

720002, Кыргыз Республикасы
Бишкек ш., Гүлстаны көч., 142
төл. 996(312) 54-98-97; факс(312) 54-98-91
www.eko.gov.kg
e-mail: info@eko.gov.kg; eco@eko.gov.kg
Кыргызстандын МСКЭ, ЮСА, ТБИЛДЭСЭИ(2004)0051
Ф/4482011101019163, КЭХ-448201,
Банк: КР ЮМ өлкөлүк Борбордук Банк
ОКТО21994004

720002, Кыргызская Республика
г. Бишкек, ул. Гүлстана, 142
тел. 996(312) 54-98-97; факс(312) 54-98-91
www.eko.gov.kg
e-mail: info@eko.gov.kg; eco@eko.gov.kg
Правительственный ГИС ЮСА, ЮСА: 02061200410051
Ф/4482011101019163, КЭХ-448201,
Банк: Центральное Казначейство при МЭР КР
ОКТО21994004

04.04.2018 № 04-4-22/1080

На № _____

Утверждаю

Заместитель директора

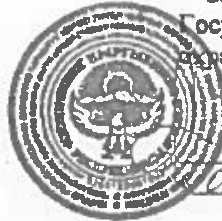
Государственного агентства
охраны окружающей среды

и лесного хозяйства

при Правительстве КР

А.А. Рыспеков

«04» 04 2018 г.



ЗАКЛЮЧЕНИЕ

ГОСУДАРСТВЕННОЙ ЭКОЛОГИЧЕСКОЙ ЭКСПЕРТИЗЫ

на Отчет «Предварительная оценка воздействия на окружающую среду»
проекта реконструкции моста через реку Урмарал на автодороге Тараз-Талас

В Государственное агентство охраны окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики (далее – ГАООСЛХ) на государственную экологическую экспертизу представлен Отчет «Предварительная оценка воздействия на окружающую среду» проекта реконструкции моста через реку Урмарал на автодороге Тараз-Талас, подготовленный Министерством транспорта и дорог Кыргызской Республики в 2018 году.

Целью реализации проекта является реконструкция моста через реку Ур-марал на 82 км автодороги Талас-Тараз для бесперебойного и безопасного движения автотранспорта в течение всего года.

Проектный участок расположен на 82 км автодороги международного значения по маршруту Талас-Тараз. Автодорога является единственным транзитным автомобильным маршрутом, обеспечивающим перемещение грузов из западной части Кыргызской Республики и далее в Республику

001822

Казахстан, Республику Узбекистан и Российскую Федерацию. Территориально проектный участок относится к Таласской области, административно – к Бакай-Атинскому району (айыл окмоту).

В проекте предусмотрены следующие компоненты:

- Реконструкция моста через реку Урмарал: 90.5м.
- Спрямление подъездных путей: 1,112 м.
- Обустройство тротуарами по обоим сторонам: 690 м с одной стороны, 510 м с противоположной стороны;
- Спрямление дамбы: Правый берег 180 м, левый берег 120 м.

Проектный участок по реконструкции моста и автодороги находится на высоте 1040 – 1060 метров над уровнем моря. Рельеф участка характеризуется как спокойный, с уклоном в сторону реки Талас.

Протяженность реконструируемого участка автодороги оставляет около 1000 метров с уклоном в сторону поймы реки и перепадом высот в 20 метров. Дорога проходит по окраине с. Ак-Дебе (северо-восточная часть) и делает крутой левый поворот в сторону моста. С юго-западной стороны автодорогу сопровождает русло реки Ур-Марал, на склоне в пойме реки дороги растут деревья (акация, абрикос) и кустарники.

В отчете приведены следующие альтернативные варианты реконструкции моста:

Вариант А: Мост пересекает реку ниже существующего моста;

Вариант В: Замена существующего моста;

Вариант С: Мост пересекает реку, избегая влияния существующей ЛЭП сглаживание кривого поворота ($R=60$) от начальной точки до $R=150$ (для скорости $V=60$ км/ч минимальный радиус кривой $R=150$ или больше).

С учетом направления потока воды в русле реки, состояния моста и опасности возникновения ДТП из-за малых радиусов кривых автодорог и в селе Ак-Дебе, а также проведенной оценки воздействия на окружающую среду выбран базовый вариант С.

Согласно Отчету, на проектной площадке особо ценных древесных пород деревьев (арча, орех) не выявлено. Территория, на которой будет реализовываться проект, не относится к землям ГЛФ и ООПТ. Зона Проекта (автодорога и мост), а так же полоса отчуждения, находятся в ведении Министерства транспорта и дорог КР. Деревья, по мере возможности будут сохранены, под вырубку подпадают только те зеленые насаждения, которые недопустимо исключить и будут пересажены максимально в соответствии с законодательством КР, по согласованию с Таласским территориальным управлением ГАООСЛХ и Бакай-Атинским айыл окмоту. Контроль за приживаемости деревьев будет осуществлять Министерство транспорта и дорог КР и органы МСУ.

В Отчете приведены перечни и требования природоохранного законодательства КР.

Для строительных работ предполагается:

- использовать материал из карьеров, расположенных в восточном направлении примерно в 3,5 км от моста (около 324,0³) и в юго-западном

направлении в 8,5 км от моста (около 300,м³) по согласованию с соответствующими органами;

- временное размещение строительных материалов осуществлять на территории ДЭП-47 при МТД КР в с. Кызыл-Суу на расстоянии около 1 км от зоны проектных работ. В настоящее время огражденная и охраняемая территория ДЭП-47 служит в качестве стоянки дорожной техники. Общая территория ДЭП-47 около 1 га.

- бетонный завод установить неподалёку от ДЭП-47 (расстояние около 0,5 км) на территории, ранее используемой для хранения битума. Общая территория площадки – около 1 га и т.д.

Согласно Отчету, проведены общественные слушания в селах Кызыл – Сай и Ак-Добо Бакай –Атинского района Таласской области и населенном одобрена данная деятельность.

В отчете рассмотрен предварительный план мероприятий по смягчению воздействия на окружающую среду, по мониторингу состояния окружающей среды, которые будут предусмотрены при проектировании реконструкции моста.

С учетом планируемых мероприятий воздействие на компоненты окружающей среды в период проведения работ по реконструкции моста оценивается как средней продолжительности, локального характера с незначительным воздействием.

Рассмотрев представленные материалы, ГАООСЛХ выносит положительное заключение государственной экологической экспертизы к Отчету «Предварительная оценка воздействия на окружающую среду» проекта реконструкции моста через реку Урмарал на автодороге Тараз-Талас.

При этом Министерству транспорта и дорог КР представить рабочий проект на реконструкцию моста до начала реализации объекта на государственную экологическую экспертизу.

Председатель экспертной комиссии,
Начальник управления государственной
экологической экспертизы
(далее - УГЭЭП):

Бекисев Б.С.

Члены экспертной комиссии:

Начальника Отдела УГЭЭП

Абдыласова Н.К.

Ведущий специалист Отдела УГЭЭП

Скаков М.Ш.

тел.: (312) 900814

**STATE AGENCY ON ENVIRONMENT PROTECTION AND FORESTRY
UNDER THE GOVERNMENT OF THE KYRGYZ REPUBLIC**

142, Gorky str., Bishkek, Kyrgyz Republic, 720005
Tel: 996 (312) 54-50-57, fax: (312) 54-50-91
www.ecology.gov.kg
e-mail: nature_kg@mail.ru; ecokg@aknet.kg
Pervomaisky STS 004, TIN: 02001200610051
s/a: 4402011101019163, BIC: 440001
Bank: Central Treasurer's Office under MF KR
OKPO: 23994204

April 4, 2018, Ref. No.04-4-28/1080

Approved
Deputy Director of the
State Agency on
Environment Protection
and Forestry under the
Government of KR
/seal affixed/ signed/ A.A. Ryspekov
April 4, 2018

**CONCLUSION
OF THE STATE ENVIRONMENTAL EXPERT REVIEW**

to the Report "Preliminary Environmental Impact Assessment" of the Project for Reconstruction of Urmalar River Bridge on Taraz-Talas Road

The Report "Preliminary Environmental Impact Assessment" of the Project for Reconstruction of Urmalar River Bridge on Taraz-Talas Road developed by the Ministry of Transport and Roads of the Kyrgyz Republic in 2018 was submitted to the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic (hereinafter referred to as the "SAEPF") to conduct the state environmental expert review.

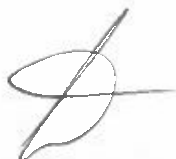
The objective of the Project is to reconstruct the bridge across Urmalar River on 82 km Talas - Taraz Road to secure the smooth and safety traffic flow throughout the year.

The project section is located on 82 km of the internationally important road along the Talas-Taraz route. The road is the only transit automobile route providing cargo transfer from the western part of the Kyrgyz Republic and further to the Republic of Kazakhstan, the Republic of Uzbekistan and the Russian Federation. Territorially, the project section belongs to Talas oblast, administratively it belongs to Bakai-Ata district (ayil okmotu).

The following components are envisaged in the project:

- Reconstruction of the Urmalar River Bridge: 90.5 m;
- Flattening of the access roads: 1.112 m;
- Arrangement of sidewalks on both sides: 690 m on one side, 510 m from the opposite side;
- Flattening of the dam: Right bank - 180 m, left bank - 120 m.

001822



The project section for the bridge and road reconstruction is located at the height of 1,040 – 1,060 m above sea level. The section relief is characterized as smooth with a slope towards the Talas River.

The length of the reconstructed road section leaves about 1,000 meters with a slope towards the river floodplain and a height difference of 20 meters. The road passes the outskirts of Ak-Debe village (north-eastern part) and makes a steep left turn towards the bridge. From the south-western side the road is accompanied by the Urmara river; trees (acacia, apricot) and shrubs grow on the slope in the floodplain of the river.

The following alternative options for bridge reconstruction are presented in the report:

Option A: The bridge crosses the river below the existing bridge;

Option B: Replacing of the existing bridge;

Option C: The bridge crosses the river avoiding the existing TL influence by upgrading the curved turn (R=60) from the starting point to R=150 (for the speed V=60 km/h, the minimum radius of the curve is R=150 or more).

The base option C was selected considering the water flow direction in the riverbed, the condition of the bridge and the risk of an accident due to the small radii of the road curves in Ak-Debe village, and based on the conducted environmental impact assessment as well.

According to the Report, no particularly valuable tree species (archa, walnut) were identified in the project section. The territory, where the project will be implemented, is not related to the lands of the SFF and SPNR. The project area (road and bridge), as well as the right of way are under the jurisdiction of the Ministry of Transport and Roads of the Kyrgyz Republic. The trees, where possible, will be preserved; only those green plantations, which are unacceptable to exclude and which will be transplanted as much as possible in accordance with the legislation of the KR, fall under the cutting down, in agreement with the Talas territorial department of SAEPP and Bakai-Ata ayil okmotu. Control over the survival ability of trees will be made by the Ministry of Transport and Roads of the Kyrgyz Republic and local governments.

The lists and requirements of the environmental legislation of the Kyrgyz Republic are given in the Report.

Construction works envisage as follows:

- to use material from quarries located in the eastern direction approximately 3.5 km from the bridge (about 324 000 m³, and in the south-west direction in 8.5 km from the bridge (about 300 000 m³) as agreed with the relevant authorities;
- to temporarily place the construction materials on the territory of DEP-47 under the Ministry of Transport and Roads of the Kyrgyz Republic in Kyzyl-Suu village at a distance of about 1 km from the project works area. Currently, the fenced and protected area of DEP-47 serves as a parking lot for road machinery. The total area of DEP-47 is about 1 hectare;
- to install a concrete plant near the DEP-47 (distance of about 0.5 km) on the territory formerly used to store bitumen. The total area of the site is about 1 hectare, etc.

According to the Report, public hearings were held in the villages of Kyzyl-Suu and Ak-Debe, Bakai-Ata district, Talas oblast, and the population approved this activity.

The preliminary action plan to mitigate the impact on the environment and to monitor the state of the environment (which will be envisaged when designing the bridge reconstruction) was considered in the report.

Considering the planned actions, the impact on the environmental components during the bridge reconstruction works is estimated as of average duration, local nature with insignificant influence.

Having considered the submitted materials, SAEPF makes a positive conclusion of the State Environmental Expert Review to the Report "Preliminary Environmental Impact Assessment" of the Project for Reconstruction of Urmalar River Bridge on Taraz-Talas Road.

Herewith, the Ministry of Transport and Roads of the Kyrgyz Republic has to submit a working project for reconstruction of the bridge before the start of the facility's implementation for the state environmental expert review.

Chairman of Expert Commission,
Head of Department of the State Environmental Expert Review
(DSEER) /signed/ B.S. Sekiev

Members of Expert Commission:

Head of the DSEER Division /signed/ N.K. Abdylasova

Leading Specialist of DSEER /signed/ M.Sh. Skakov

tel.: (312) 900814



Environmental Management Plan/Environment Monitoring Plan

Mitigation Measures and Cost for Mitigation Measures

As a result of impact assessment, significant negative impact is not expected. The expected mitigation measures necessary for the implementation of the Project are shown in Table 1-4-29 Environmental Management Preliminary Plan (EMP), supervising Consultant and Contractor are responsible for EMP implementation. Before starting Project implementation EMP to be revised by Consultant and Contractor. Thereupon approval of MOTR and Talas TREPDP shall be obtained.

Supervising Consultant and Contractor will control all of the activities, disclose issues and give recommendations on how to improve situation, prepare monthly, quarterly and annual environmental reports. MOTR will review the reports and instruct additional measures if necessary. These activities on environmental protection are common for the construction works, therefore all the related expenses except sampling are included into the construction cost.

Table1-4-29 Environmental Management Preliminary Plan (EMP)

	Item	Impact	Measure	Implementing Agency	Responsible Agency	Monitoring and Timing
Construction Stage						
1	Air Quality	Air pollution by dust and exhaust gases from operating equipment	<ul style="list-style-type: none"> • Appropriate construction machinery is used and maintained regularly. Unnecessary idling is avoided. • Water spraying is done regularly to avoid raising sand dust. • In case backfilling materials and construction materials are stocked temporarily in the stock yards or the construction site, these materials are covered by sheets to avoid scattering. • Regular monitoring is carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. • Line ministries and organizations are recommended to strengthen restrictions on ill-serviced vehicles. 	Contractor Consultant MOTR	MOTR	Sampling / Quarterly. Dust control / daily.
2	Water Quality	Water contamination due to construction work	<ul style="list-style-type: none"> • Appropriate construction machinery is used and maintained regularly. • Waste water arising from construction works is discharged after treatment in sand basin and not discharged into the river directly. • Construction machinery is not washed in the rivers. • Regular monitoring surveys are carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. 	Contractor Consultant MOTR	MOTR	Sampling / Quarterly Discharge control/ daily

	Item	Impact	Measure	Implementing Agency	Responsible Agency	Monitoring and Timing
3	Wastes	Construction waste and human wastes	<ul style="list-style-type: none"> Wastes are recycled and reused as much as possible. Wastes unable to be recycled and reused are disposed to authorized facilities. Prohibition to spoil and to dump wastes into the river. 	Contractor Consultant	MOTR	Waste control/ daily
4	Soil Contamination	Oil and concrete mortar leakage during construction work	Adequate technical maintenance of the machinery. Emergency Plan of Action preparation.	Contractor Consultant	MOTR	Leakage control/ daily
5	Noise & Vibration	Noise and vibration during construction machinery exploitation	<ul style="list-style-type: none"> Appropriate construction machinery is used and maintained regularly. Low-noise construction machinery is utilized. Construction works are done within designated working hours. In case of night work, the permission of is obtained and the notice of the work is notified to local residents in advance. Anti-noise screens are utilized if needed. Regular monitoring surveys are carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. Line ministries and organizations are recommended to strengthen restrictions on ill-serviced vehicles. 	Contractor Consultant MOTR	MOTR	Noise and vibration monitoring / Quarterly Working hour control/ daily
6	Offensive Odor	Offensive odors due to exhaust gas and human wastes.	<ul style="list-style-type: none"> Appropriate construction machinery is used and maintained regularly. Unnecessary idling is avoided. Line ministries and organizations are recommended to strengthen restrictions on ill-serviced vehicles Daily wastes management is to be organized appropriately with village administration. 	Contractor Consultant	MOTR	Waste control/ daily
7	Ecosystem	Cutting of trees	<ul style="list-style-type: none"> Trees which are not affecting construction work are not cut to the extent possible. Existing trees are replanted as much as possible. Trees cutting plan development demands Talas TREP and Bakai-Ata village administration approval. 	Local Administration Contractor Consultant	MOTR	Review of tree cutting plan/ Before construction Tree condition/ monthly
8	Hydrology	Construction works in river bed: excavation, bridge piles concrete casting, river bed alignment.	<ul style="list-style-type: none"> River bed construction works plan is developed. Construction management shall be performed considering water flow, such as installation plan for temporary objects not hindering the water flow as much as possible. After Project detailed plan of works developed additional measures for impact reduction might be needed. 	Contractor Consultant	MOTR	Visual observation/ daily
9	Land Use and	Land for gravel pit	Contractor will develop gravel pit utilization plan including quarry schedule	Contractor Consultant	MOTR	Land utilization

	Item	Impact	Measure	Implementing Agency	Responsible Agency	Monitoring and Timing
	Utilization of Local Resources	will be utilized.	and quantity according to construction plan for the period of project implementation.			control / monthly
10	Existing Social Infrastructures and Services	Temporary detour occupies a section of existing road.	<ul style="list-style-type: none"> Approval with Traffic police is obtained. Road signs and information boards is installed properly. 	Contractor Consultant	MOTR	Claims and complains on new operating conditions registration and timely response / as needed
11	Landscape	Cutting of trees	<ul style="list-style-type: none"> Trees which are not affecting construction work are not cut to the extent possible. Existing trees are replanted as much as possible. Greening plan is considered for river dike. 	Local Administration Contractor Consultant	MOTR	Visual observation/ monthly
12	Gender issues	Wage difference of males and females	<ul style="list-style-type: none"> The contract with the contractor prohibits the wage difference by gender. Contractor's employees account book is monitored. 	Contractor Consultant MOTR	MOTR	According to the payment / 1 or 2 times a month
13	Infectious Diseases such as HIV/AIDS	Possible contact with HIV positive person	<ul style="list-style-type: none"> Stringent prohibition of drug consumption Advocacy work implementation Establish communication with medical personnel of local hospital to implement measures for HIV/AIDS prevention and control 	Contractor Consultant	MOTR	Implementation schedule, advocacy work, daily schedule / monthly
14	Working Condition including Occupational Safety	Labors incidents and injures	<ul style="list-style-type: none"> Construction safety regulations provision Installation of adequate safety equipment Utilization of uniform, safety boots, helmets, protective glasses, gloves. First aid provision system is established. 	Contractor Consultant	MOTR	Briefing / weekly
15	Accidents	Incidents during construction works	<ul style="list-style-type: none"> Construction safety regulations provision Safety educations are provided to construction workers. The contract with the contractor stipulates the implementation of the safety educations. Construction workers put on safety equipment such as helmet and safety shoes. Sidewalks separated from carriage ways are installed. Sign boards and road markings with a high regard for safety are placed. Information such as construction plans are disclosed to the public. 	Contractor Consultant	MOTR	Constantly
16	Global Warming	CO ₂ emission	<ul style="list-style-type: none"> Appropriate construction machinery is used and maintained regularly. Unnecessary idling is avoided. 	Contractor Consultant	MOTR	Constantly
Operation Stage						
1	Air Quality	Air pollution by exhaust gases from traffic	<ul style="list-style-type: none"> Regular monitoring is carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. Line ministries and organizations are recommended to strengthen restrictions on ill-serviced vehicles. 	MOTR	MOTR	Sampling Every six months

	Item	Impact	Measure	Implementing Agency	Responsible Agency	Monitoring and Timing
2	Water Quality	Water contamination due to spilled oil and dust on the road when raining	<ul style="list-style-type: none"> Regular monitoring is carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. 	MOTR	MOTR	Sampling / Every six months
3	Noise & Vibration	Noise and vibration from traffic	<ul style="list-style-type: none"> Regular monitoring is carried out. In case the values get worse extremely compared to baseline survey's values and environmental standard, the reason shall be found out and necessary measures shall be taken. Line ministries and organizations are recommended to strengthen restrictions on ill-serviced vehicles. In case pot holes and damages on the Project road are found, they are repaired immediately. 	MOTR	MOTR	Sampling / Every six months
4	Hydrology	River channel transition	<ul style="list-style-type: none"> Regular monitoring is carried out. In case any serious problem is observed, the reason shall be found out and necessary measures shall be taken. If driftwood is accumulated, it should be removed immediately. 	MOTR	MOTR	Constantly
5	Landscape	Condition of trees and greening plan	<ul style="list-style-type: none"> Condition of replanted trees and greening plan of river dike are monitored regularly. 	Local Administration MOTR	MOTR	Constantly

Monitoring Plan

The monitoring plan of the Project in construction stage and first two years of operation stage is as follows. It will be reviewed and modified at the time of Detailed Design (D/D) if necessary. MOTR shall compile the results of monitoring survey and report to SAEPF / JICA every quarter during construction and every half year in operation stage.

Table1-4-30 Environmental Monitoring Plan (EMoP)

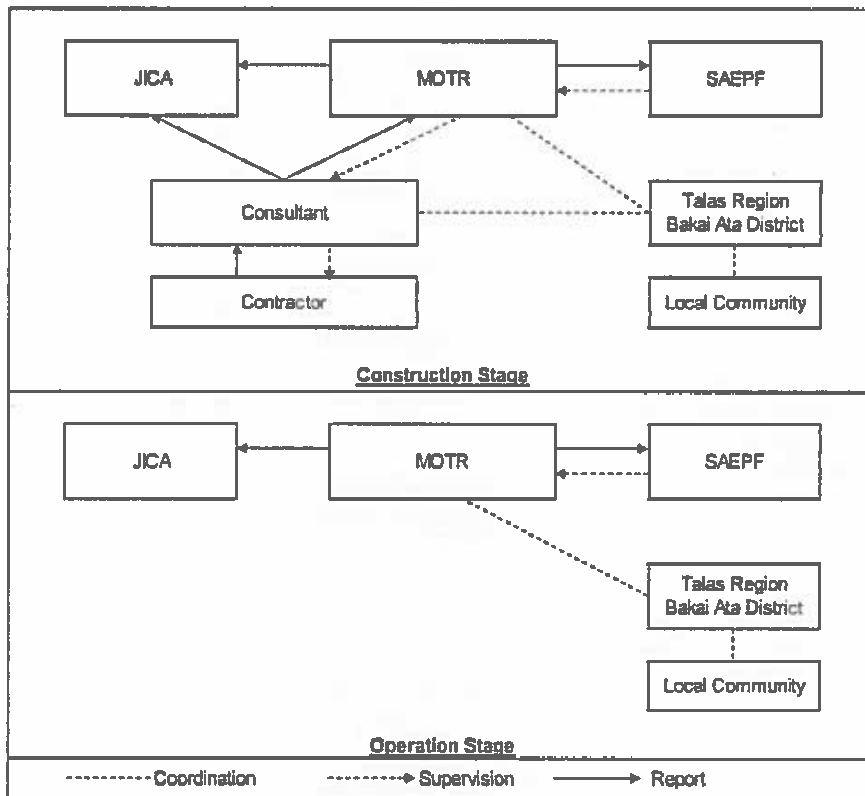
Item	Parameter	Survey Point (same as each baseline survey)	Frequency (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)	Implementing/ Responsible agency	Cost (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)
Air Quality	NO ₂ , SO ₂ , CO, TSP, Pb	Ak Dobo (0+400) Kyzyl-Sai (1+160)	Construction stage: Quarterly Operation stage: Biannually	MOTR	1,000\$ x 10 = 10,000\$ 1,000\$ x 4 = 4,000\$
	Dust	In and around construction site	Construction stage: Daily (Visual observation)	Consultant/ MOTR	Included in construction cost
Water Quality	pH, SS, DO, Mineral Oil, Cadmium, Pb, Arsenic, Mercury	Urmalar River	Construction stage: Quarterly Operation stage: Biannually	MOTR	1,250\$ x 10 = 12,500\$ 1,250\$ x 4 = 5,000\$
	Discharge control	In and around construction site	Construction stage: Daily (Visual observation)	Consultant/ MOTR	Included in construction cost
Wastes	Construction waste	In and around construction site	Construction stage: Daily (Visual observation and meeting with contractor)	Consultant/ MOTR	Included in construction cost

Item	Parameter	Survey Point (same as each baseline survey)	Frequency (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)	Implementing/ Responsible agency	Cost (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)
Soil Contamination	Oil and concrete mortar leakage	In and around construction site	Construction stage: Daily (Visual observation and review of inspection record)	Consultant/ MOTR	Included in construction cost
Noise & Vibration	Noise & Vibration Level	Ak Dobo (0+400) Kyzyl-Sai (1+160)	Construction stage: Quarterly Operation stage: Biannually	MOTR	1,000\$ x 10 = 10,000\$ 1,000\$ x 4 = 4,000\$
	Working hour	In and around construction site	Construction stage: Daily (Review of working record)	Consultant/ MOTR	Included in construction cost
Offensive Odor	Daily wastes	In and around construction site, worker's camp	Construction stage: Daily (Visual observation)	Consultant/ MOTR	Included in construction cost
Ecosystem	Tree cutting plan	-	Before construction: Once or as needed	Consultant/ MOTR	Included in construction cost
	Tree condition	In and around construction site	Construction stage: Monthly (Visual observation and meeting with local administration)		
Hydrology	Water flow	Urmalar River	Construction stage: Daily (Visual observation and review of work plan)	Consultant/ MOTR	Included in construction cost
	River channel transition		Operation stage: Monthly (Visual observation)	MOTR	Included in maintenance cost
Land Use and Utilization of Local Resources	Land utilization	Gravel pit and quarry	Construction stage: Monthly (Visual observation and review of working record)	Consultant/ MOTR	Included in construction cost
Existing Social Infrastructures and Services	Impact to existing road by temporary detour (Complaints handling)	In and around construction site	Construction stage: As needed	Consultant/ MOTR	Included in construction cost
Landscape	Tree cutting plan	-	Before construction: Once or as needed	Consultant/ MOTR	Included in construction cost
	Condition of trees and greening plan	In and around construction site	Construction stage: Monthly (Visual observation and meeting with local administration)		
			Operation stage: Monthly (Visual observation and meeting with local administration)	MOTR	Included in maintenance cost
Gender issues	Monitoring of employees account book	-	Construction stage: According to the payment (1 or 2 times a month)	Consultant/ MOTR	Included in construction cost
Infectious Diseases such as HIV/AIDS	Advocacy work implementation	-	Construction stage: Monthly (Review of schedule and implementation record)	Consultant/ MOTR	Included in construction cost
Working Condition including Occupational Safety	Briefing (safety education) implementation	-	Construction stage: Weekly (Review of implementation record)	Consultant/ MOTR	Included in construction cost
	Accident report (industrial)	In and around construction	Construction stage: As needed		

Item	Parameter	Survey Point (same as each baseline survey)	Frequency (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)	Implementing/ Responsible agency	Cost (Upper: Construction Stage/ 2.5 years) (Lower: Operation Stage/ 2 years)
	accident)	site			
Accidents	Accident report (traffic and third party accident)	In and around construction site	Construction stage: As needed	Consultant/ MOTR	Included in construction cost
Global Warming	Regular maintenance of construction machinery and idling stop	In and around construction site	Construction stage: Daily (Visual observation and review of inspection record)	Consultant/ MOTR	Included in construction cost
Total					32,500\$ 13,000\$

1-1-1 Implementation System of EMP and EMoP

The implementation structure of EMP and EMoP during construction and operation stage are shown in Figure 1-4-8.



Source: JICA Study Team

Figure1-4-8 Implementation Structure of EMP and EMoP

Environmental and Social Monitoring Form (For MOTR, Construction stage)

1. Mitigation Measures

- Air Quality

Item (mg/m ³)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards (Mean) (Max)		Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
SO ₂	0+400			0.001±0.0003	0.05	0.5	0.04 ppm	-Measurement Point: Same with baseline survey -Frequency: Quarterly -Method: Same with baseline survey
	1+160			0.001±0.0003				
NO ₂	0+400			0.04±0.015	0.04	0.085	0.04-0.06 ppm	
	1+160			0.04±0.01				
CO	0+400			1.1±0.22	3.0	5.0	10 ppm	
	1+160			1.6±0.32				
TSP	0+400			<0.1	0.15	0.5	0.10 mg/m ³	
	1+160			<0.1				
Pb	0+400			<0.0001	0.0003	0.01	-	
	1+160			<0.0001				

- Water Quality

Item (Unit)	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
pH			7.9	6.5-8.5	6.5-8.5	-Measurement Point: 20m downstream from existing Urmaral river bridge -Frequency: Quarterly -Method: Same with baseline survey
SS (mg/l)			1.0	<0.75	<25	
DO (mg/l)			11.2	>4	>5	
Mineral Oil (mg/dm ³)			<0.02	<0.3	<0.5 (Sea)	
Cadmium (mg/dm ³)			<0.0002	<0.01	<0.03	
Pb (mg/dm ³)			<0.0002	<0.01	<0.01	
Arsenic (mg/dm ³)			<0.01	<0.1	<0.01	
Mercury (mg/dm ³)			<0.003	<0.1	<0.0005	

- Noise / Vibration

Item (Unit)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (dB)	0+400			52-92	75	45-55	-Measurement Point: Same with baseline survey -Frequency: Quarterly -Method: Same with baseline survey
	1+160			45-94			
Vibration level (dB)	0+400			71-98	108	60-65	
	1+160			74-101			

Environmental and Social Monitoring Form (For MOTR, Operation stage)

1. Mitigation Measures

- Air Quality

Item (mg/m ³)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards (Mean) (Max)		Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
SO ₂	0+400			0.001±0.0003	0.05	0.5	0.04 ppm	-Measurement Point: Same with baseline survey -Frequency: Biannually -Method: Same with baseline survey
	1+160			0.001±0.0003				
NO ₂	0+400			0.04±0.015	0.04	0.085	0.04-0.06 ppm	
	1+160			0.04±0.01				
CO	0+400			1.1±0.22	3.0	5.0	10 ppm	
	1+160			1.6±0.32				
TSP	0+400			<0.1	0.15	0.5	0.10 mg/m ³	
	1+160			<0.1				
Pb	0+400			<0.0001	0.0003	0.01	-	
	1+160			<0.0001				

- Water Quality

Item (Unit)	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
pH			7.9	6.5-8.5	6.5-8.5	-Measurement Point: 20m downstream from existing Urmara river bridge -Frequency: Biannually -Method: Same with baseline survey
SS (mg/l)			1.0	<0.75	<25	
DO (mg/l)			11.2	>4	>5	
Mineral Oil (mg/dm ³)			<0.02	<0.3	<0.5 (Sea)	
Cadmium (mg/dm ³)			<0.0002	<0.01	<0.03	
Pb (mg/dm ³)			<0.0002	<0.01	<0.01	
Arsenic (mg/dm ³)			<0.01	<0.1	<0.01	
Mercury (mg/dm ³)			<0.003	<0.1	<0.0005	

- Noise / Vibration

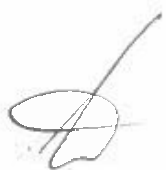
Item (Unit)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (dB)	0+400			52-92	75	45-55	-Measurement Point: Same with baseline survey -Frequency: Biannually -Method: Same with baseline survey
	1+160			45-94			
Vibration level (dB)	0+400			71-98	108	60 - 65	
	1+160			74-101			

2. Natural and Social Environment**- Hydrology**

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
River channel transition		

- Landscape

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees and greening plan		



7

Environmental and Social Monitoring Form (For Consultant, Construction Stage)

1. Mitigation Measures

- Air Quality

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Dust		

- Water quality

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Situation of waste water discharge		

- Waste

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Construction waste disposal situation		

- Soil Contamination

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Leakage status		

- Noise & Vibration

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Working hours		

- Offensive Odor

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Human waste disposal situation		

2. Natural Environment

- Ecosystem

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees		

- Hydrology

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Visual observation of river flow		

3. Social Environment

- Land Use and Utilization of Local Resources

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Land utilization control		

- Existing Social Infrastructures and Services

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Impact to existing road (response to claims and complains)		

- Landscape

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees and greening plan		

- Gender

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Monitoring of contractor's employees account book		

- Infectious Diseases such as HIV/AIDS

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Implementation status of advocacy work		

- Working Condition

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Implementation status of briefing (Safety education)		
Accident report (Occupational accident)		

- Accidents

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Accident report (Traffic accident, third party)		

- Global warming


Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Maintenance of construction machinery and Situation of idling		

4. Claims and complains regarding environmental impact

Number of claims and complains	Content	Correspondence and result

- Other issues (Free description in the following columns)

--




7. Technical Note 1 MOTR (TN1 MOTR)

Technical Note

on the Preparatory Survey on the Project for Reconstruction of Urmara River Bridge
on Talas-Taraz Road in the Kyrgyz Republic


Ministry of Transport and Roads of Kyrgyz Republic and the joint venture between Katahira & Engineers International and Ingerosec, the consultants for the above-mentioned survey by the Japan International Cooperation Agency (JICA), have agreed on the points listed in the annex hereto regarding the design. However, the contents of the design will be finalized after the survey team has returned to Japan through discussions with those concerned on the Japanese side, such the Head Office of JICA.

June 29, 2017
Bishkek, Kyrgyz Republic



The Preparatory Survey on the Project for
Reconstruction of Urmara River Bridge on
Talas-Taraz Road in the Kyrgyz Republic
Chief Consultant

Tsuyoshi YAMAJUKU



Kyrgyz Republic
Ministry of Transport and Roads
Head of Road Department

Melisbek ALYPSATAROV

ANNEX

This study aims to gather the information required for planning and design of the Urmamal River Bridge on Talas-Taraz Road while checking the contents that were determined during the concept stage of the project. Therefore, the contents of the design will be unchanged in principle. However, the following key points related to the planning and design have been confirmed.

1. Scope of Project

The length of the project bridge and road section shall be approximately 1.1km at the moment.



Figure I-1 Location Map

2. Road Design Standard

The standard SNIP KR 32-01:2004 in Kyrgyz shall be basically adopted, AASHTO and Road Ordinance in Japan shall be referred as necessary.

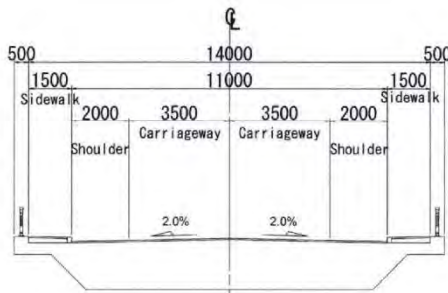
(1) Design Speed

Talas-Taraz Road is international road and the design classification of the project road shall be adopted with Class II from SNIP KR 32-01:2004. This project is the improvement of Urmamal river bridge and road. The project area is located in a village

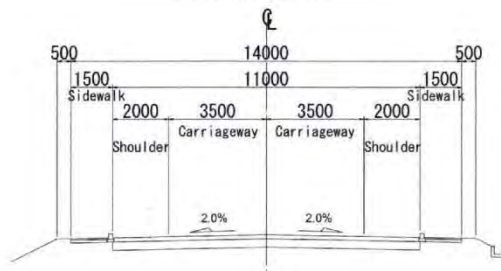
area and limited and the speed limitation of the road in this area is 60km/h. Therefore, design speed 60km/h shall be adopted. However, the alignment of this road shall be tried to be adopted as smooth as possible.

(2) Cross Section

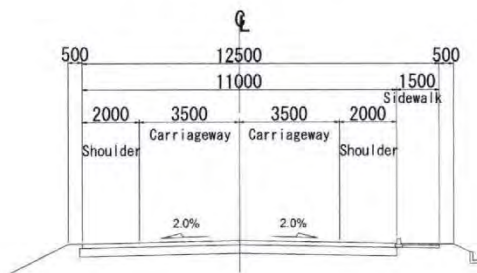
The cross sections of this road shall be adopted with those of road classification II of SNIP KR 32-01:2004. Carriageway :3.5m, Shoulder :1.5m, Sidewalk :2.0m.



Bridge Section



Embankment Section(B)



Embankment Section(A)

Figure 2-1 Typical Cross Section (Draft)

(3) Pavement

Pavement Design Standard shall be basically adopted and its validity shall be verified with AASHTO.

Design duration of asphalt concrete pavement shall be adopted 10years after operation considering the life of pavement.

3. Bridge Design Load

(1) Live Load

Bridge design shall be considered with B type live load on specifications for highway bridges in Japan and armored vehicle load (HK-80) in Kyrgyz.



8. Technical Note 2 MOTR (TN2 MOTR)

Technical Note

The Preparatory Survey on
The Project for Reconstruction of Urmara River Bridge on Talas-Taraz Road in the Kyrgyz Republic

Ministry of Transport and Roads of Kyrgyz Republic and the joint venture between Katahira & Engineers International and Ingerosec, the consultants for the above-mentioned survey by the Japan International Cooperation Agency (JICA), have agreed on the points listed in the annex hereto regarding the design. However, the contents of the design will be finalized after the survey team has returned to Japan through discussions with those concerned on the Japanese side, such the Head Office of JICA.

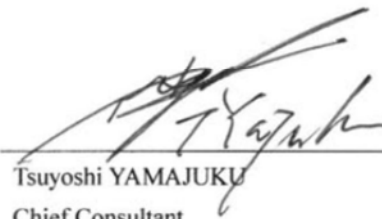
October 11, 2017
Bishkek, Kyrgyz Republic

Noted by :



Melisbek ALYPSATAROV
Head of Road Department
Ministry of Transport and Roads
The Kyrgyz Republic

Noted by :



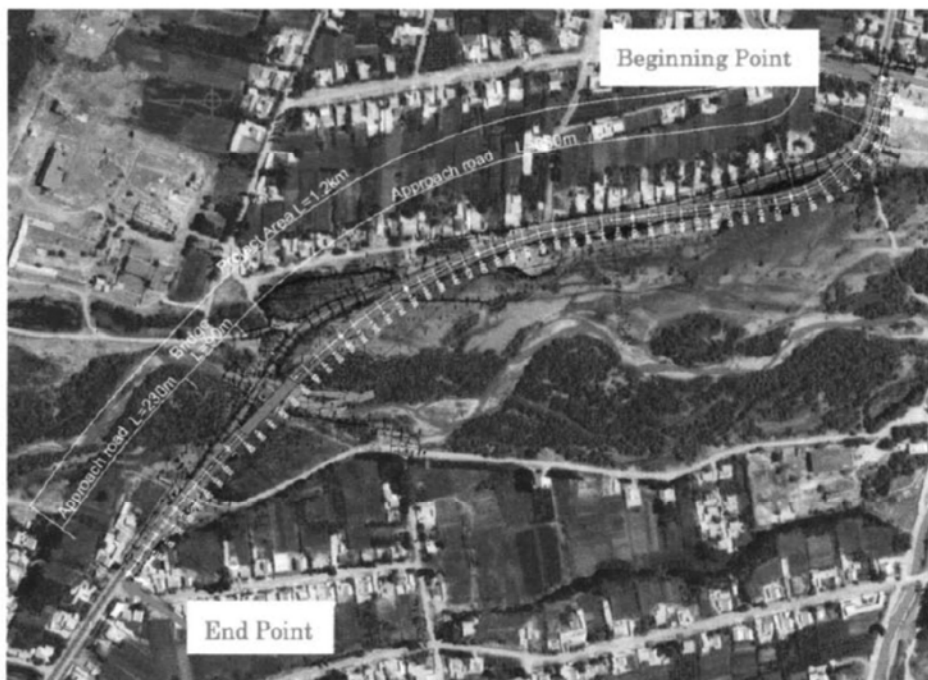
Tsuyoshi YAMAJUKU
Chief Consultant
JICA Survey Team

1. Scope of the Project and the Project Route

The result of the comparison of the alternative routes, the scope of the project and the project route are shown in Figure 1.

The beginning and end points of the project were agreed with the Study Team, MOTR and the project unite office of IsDB project.

Item	Length
Approach road extension	L=1,112 m
Bridge extension	L=90.5 m
Total extension	L=1,203 m
Pedestrian extension	L=690 m (Both sides sidewalk) L=510 m (One side sidewalk)



2. Bridge Design

(1) Live Load

Bridge design shall be considered with B type live load on specification for highway bridges in Japan and armored vehicle load (HK-80) in Kyrgyz.

(2) Seismic Conditions for Bridge

According to 100gal, 0.1 is adopted as coefficient of the seismic condition for designing the bridge because during the past approximately 100 years, the earthquake more than 100gal is only once, and the others are less than 100gal.

(3) River Conditions for Bridge

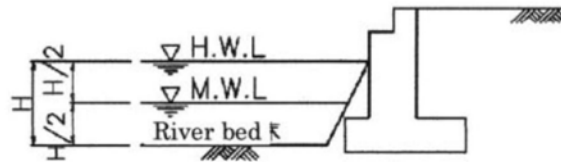
【Setting the Clearance under Girder】

The extracted value which is 60cm according to the design high-water discharge of the target river is added to HWL. In addition, the extracted value which is 50cm is added by the technical standards for erosion control in Japan because this River is steep slope and has much sediment from upstream.

The clearance under girder and the beam of the pier is to be the “60cm + 50cm + HWL” and planned to prevent blockage of the space under the girder with driftwoods.

【Design Water Level】

The design water level used for designing of the substructure is to comply with the Japanese standards (Specifications for the Bridge); normally HWL, but MWL (HWL – design bed height) x 1/2 in the case of earthquake.



Source: Planning manual, MLIT, JAPAN

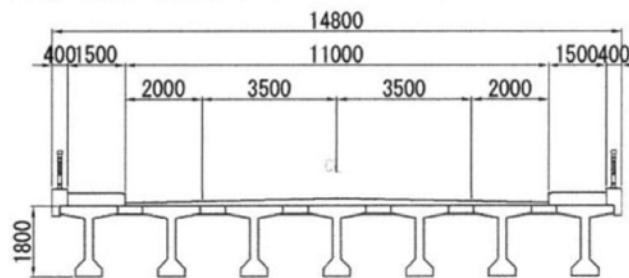
Design Water Level

(4) Ground Conditions for Bridge

Ground conditions are set from the ground survey conducted within this November.

(5) Road Conditions for Bridge

The basic width of the bridge section is as follows.



Basic width of the bridge section



3. Environment and Social Consideration

(1) Environmental Impact Assessment (EIA) Approval

Necessary procedures concerning the environmental assessment (including stakeholder meetings, Environmental Impact Assessment (EIA)/ Initial Environmental Examination (IEE), Social Impact Assessment and information disclosure, etc.) shall be conducted and EIA/IEE report of the Project shall be prepared by the GOKR side. The EIA/IEE approval shall be received from the responsible authorities and submitted to JICA by June 2018 at the latest. Time schedule of EIA/IEE approval is shown below and the GOKR makes maximums efforts to obtain EIA/IEE approval of the Project from the responsible authorities until the due date.

Year	2017				2018					
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Preparation of the EIA Report by Local Consultant		/ / / / / / / / / /								
Review of EIA Report by MOTR and JICA				/ / / / / / / / / /						
Stakeholder Meeting		▲			▲					
Submission of the Finalized EIA Report to MOTR						▲				
Acquisition of EIA Approval from SAEPF									▲	

4. Undertaking by Government of Kyrgyz

(1) Land for the Project

The land required for the implementation of the Project including land for site office, plant yards, material storing yards, temporary construction yard and waste disposal site shall be secured before the Pre-qualification of tender work. The GOKR shall proceed required actions and procedures in due course.

(2) Relocation of Utilities and Other Obstructions

All utilities and other obstructions (Telephone Line pole 7Nos.) located in the project site will be relocated to the outside of the Project site before the Pre-qualification of tender work. MOTR and local administration will be responsible for the relocation of the utilities.

(3) Tax exemption

For smooth implementation of the project, the diet approval for the tax exemption of the project shall be obtained by means of preparing in advance as much as possible.




9. Technical Note 2 MOTR (TN2 MES)

Technical Note

The Preparatory Survey on
The Project for Reconstruction of Urmara River Bridge on Talas-Taraz Road in the
Kyrgyz Republic


October 10, 2017

Bishkek, Kyrgyz Republic

Noted by : 


ALISHEROV Talay
Deputy Director of Department for the
prevention and elimination of
consequences of emergency situations
Ministry of Emergency Situations
The Kyrgyz Republic

Noted by :

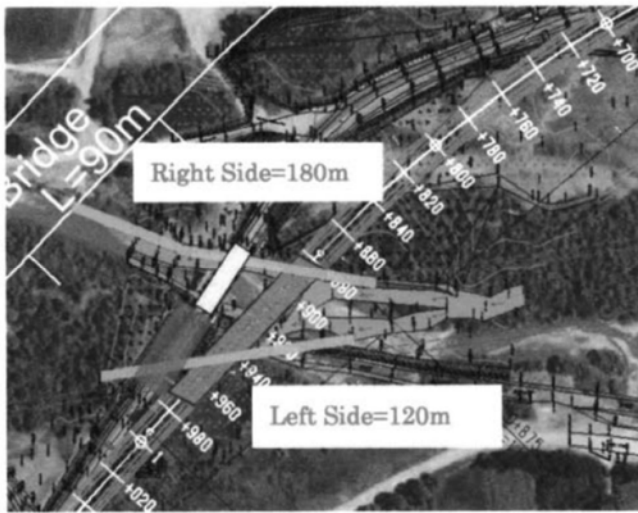

YAMAJUKU Tsuyoshi
Chief Consultant
JICA Survey Team

(1) Maximum Flow Volume

The existing protection dike on the left upstream side was designed as maximum flow volume is 94.6 m³/s (100-year occurrence probability flow volume). And According to the flow volume data from 1927 to 2015 collected in Urmal River Meteorological Observatory, Talas State, Maximum flow volume during that period was 102m³/s. In these point of view, maximum flow volume was adopted to 110 m³/s.

(2) Scope of Protection Dike

A new Protection Dike will be constructed by Japan side as scope of below figure.



(3) Removal of Existing Protection Dike

The existing Protection Dike located in the project site will be removed to the outside of the Project site before the commencement of the Project road and bridge construction. MES will be responsible for the removal of the existing Protection Dike.

10. List of References and Collection Data

No	Name of Collection Data
1	Annual Planning for road and structure repairs for PLUAD #5, 2017
2	Road Maintenance Annual Budget of MOTR for 2007-2016
3	Decree of the Government of the Kyrgyz Republic N 155 of 12 April 2011 “Regulation on the procedure of exemption of taxes, duties and other payments”
4	Talas Oblast Traffic Police report on road accidents for 2016
5	NATIONAL SUSTAINABLE DEVELOPMENT STRATEGY 2013-2017, Kyrgyz Republic
6	Main Directions of the road sector development for 2016-2025, Kyrgyz Republic
7	Inventory Data for the bridge on Urmalar River, 2016
8	Traffic intensity data for Talas Oblast, 2016
9	Kyrgyz Standards – Highway construction standards, 1998
10	Kyrgyz Standards – Design of Highways SNiP KP 32-01-2004, 2004
11	Kyrgyz Standards – Design of Bridges and pipes SNiP 2.05.03-84
12	Kyrgyz Standards – Design of non-solid road pavements ODN 218.046-01, 2001
13	Urmalar River, topographic mapping data, 2007
14	Project Documentation of Islamic Development Bank for the Phase III project “Rehabilitation of Suusamir-Talas-Taraz Road, Section 73 km – 105 km”, 2011

11. Environmental Monitoring Form

Monitoring Form (For MOTR, Construction stage)

1) Mitigation Measures

- Air Quality

Item (mg/m ³)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards (Mean) (Max)		Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
SO ₂	0+400			0.001±0.0003	0.05	0.5	0.04 ppm	-Measurement Point: Same with baseline survey -Frequency: Quarterly -Method: Same with baseline survey
	1+160			0.001±0.0003				
NO ₂	0+400			0.04±0.015	0.04	0.085	0.04-0.06 ppm	
	1+160			0.04±0.01				
CO	0+400			1.1±0.22	3.0	5.0	10 ppm	
	1+160			1.6±0.32				
TSP	0+400			<0.1	0.15	0.5	0.10 mg/m ³	
	1+160			<0.1				
Pb	0+400			<0.0001	0.0003	0.01	-	
	1+160			<0.0001				

- Water Quality

Item (Unit)	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
pH			7.9	6.5-8.5	6.5-8.5	-Measurement Point: 20m downstream from existing Urmalar river bridge -Frequency: Quarterly -Method: Same with baseline survey
SS (mg/l)			1.0	<0.75	<25	
DO (mg/l)			11.2	>4	>5	
Mineral Oil (mg/dm ³)			<0.02	<0.3	<0.5 (Sea)	
Cadmium (mg/dm ³)			<0.0002	<0.01	<0.03	
Pb (mg/dm ³)			<0.0002	<0.01	<0.01	
Arsenic (mg/dm ³)			<0.01	<0.1	<0.01	
Mercury (mg/dm ³)			<0.003	<0.1	<0.0005	

- Noise / Vibration

Item (Unit)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (dB)	0+400			52-92	75	45-55	-Measurement Point: Same with baseline survey -Frequency: Quarterly -Method: Same with baseline survey
	1+160			45-94			
Vibration level (dB)	0+400			71-98	108	60 - 65	
	1+160			74-101			

Monitoring Form (For MOTR, Operation stage)

1) Mitigation Measures

- Air Quality

Item (mg/m ³)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards (Mean) (Max)		Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
SO ₂	0+400			0.001±0.0003	0.05	0.5	0.04 ppm	-Measurement Point: Same with baseline survey -Frequency: Biannually -Method: Same with baseline survey
	1+160			0.001±0.0003				
NO ₂	0+400			0.04±0.015	0.04	0.085	0.04-0.06 ppm	
	1+160			0.04±0.01				
CO	0+400			1.1±0.22	3.0	5.0	10 ppm	
	1+160			1.6±0.32				
TSP	0+400			<0.1	0.15	0.5	0.10 mg/m ³	
	1+160			<0.1				
Pb	0+400			<0.0001	0.0003	0.01	-	
	1+160			<0.0001				

- Water Quality

Item (Unit)	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
pH			7.9	6.5-8.5	6.5-8.5	-Measurement Point: 20m downstream from existing Urmalar river bridge -Frequency: Biannually -Method: Same with baseline survey
SS (mg/l)			1.0	<0.75	<25	
DO (mg/l)			11.2	>4	>5	
Mineral Oil (mg/dm ³)			<0.02	<0.3	<0.5 (Sea)	
Cadmium (mg/dm ³)			<0.0002	<0.01	<0.03	
Pb (mg/dm ³)			<0.0002	<0.01	<0.01	
Arsenic (mg/dm ³)			<0.01	<0.1	<0.01	
Mercury (mg/dm ³)			<0.003	<0.1	<0.0005	

- Noise / Vibration

Item (Unit)	Survey Point	Measured Value (Mean)	Measured Value (Max)	Baseline Value	Country's Standards	Referred International Standards (Japan)	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (dB)	0+400			52-92	75	45 – 55	-Measurement Point: Same with baseline survey -Frequency: Biannually -Method: Same with baseline survey
	1+160			45-94			
Vibration level (dB)	0+400			71-98	108	60 - 65	
	1+160			74-101			

2) Natural and Social Environment

- Hydrology

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
River channel transition		

- Landscape

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees and greening plan		

Monitoring Form (For Consultant, Construction Stage)

1) Mitigation Measures

- Air Quality

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Dust		

- Water quality

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Situation of waste water discharge		

- Waste

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Construction waste disposal situation		

- Soil Contamination

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Leakage status		

- Noise & Vibration

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Working hours		

- Offensive Odor

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Human waste disposal situation		

2) Natural Environment

- Ecosystem

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees		

- Hydrology

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Visual observation of river flow		

3) Social Environment

- Land Use and Utilization of Local Resources

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Land utilization control		

- Existing Social Infrastructures and Services

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Impact to existing road (response to claims and complains)		

- Landscape

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Condition of trees and greening plan		

- Gender

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Monitoring of contractor's employees account book		

- Infectious Diseases such as HIV/AIDS

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Implementation status of advocacy work		

- Working Condition

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Implementation status of briefing (Safety education)		
Accident report (Occupational accident)		

- Accidents

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Accident report (Traffic accident, third party)		

- Global warming

Monitoring Item	Monitoring Results during Report Period	Necessity of Countermeasures and Measures Taken
Maintenance of construction machinery and Situation of idling		

4) Claims and complains regarding environmental impact

Number of claims and complains	Content	Correspondence and result

- Other issues (Free description in the following columns)

--

12. Technical Data

- (1) Existing Bridge survey result
- (2) Traffic survey result
- (3) Topographic survey result
- (4) Geological survey result
- (5) Stakeholder meeting record
- (6) Axle survey data
- (7) Pavement design calculation

(1) Existing Bridge survey result

1. Evaluation of Existing Bridges Condition

The existing Urmal River Bridge has damages due to particularly severe winter and snowmelt flood. Therefore, the condition of this Bridge was evaluated based on bridge inspection including other bridges around this bridge for confirmation of regional characteristic.

1) Method of Bridge Inspection and Evaluation

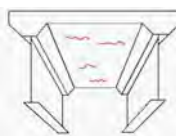
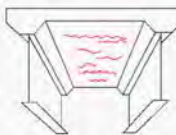
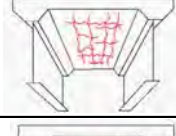
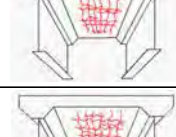
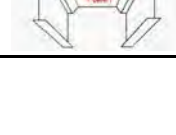
Bridge inspection and evaluation were conducted based on “Bridge Inspection Manual, 2014 June, MLIT Japan”. Evaluation criteria of this manual are shown in Table 1 and Table 2.

Table 1 Evaluation Criteria (1/2)

【Condition of Major Member】

Structure	Member	Material	Damage	Possibility of confirmation		Damage evaluation criterion(a~e) (Reference:Ministry of Land, Infrastructure, Transport and Tourism, MLIT in Japan)
				Visual inspection (from a distance)	Visual inspection (closer)	
Super-structure	Deck Slab	Concrete	Spalling/ Rebar exposure	○	○	a:Not found b:- c:Peeling d:Rebar exposure(small) e:Rebar exposure(big)
			Water leakage/ Free lime	○	○	a:Not found b:- c:Water leakage d:Free lime e:Free lime+Rust fluid
			Crack	○	○	Appendix
			peeling off	△	○	a:Not found b:- c:- d:- e:Found
			Loose part	△	○	a:Not found b:- c:- d:- e:Found
Sub-structure	Body	Concrete	Crack	○	○	Appendix
			Spalling/ Rebar exposure	○	○	a:Not found b:- c:Peeling d:Rebar exposure(small) e:Rebar
			Water leakage/ Free lime	○	○	a:Not found b:- c:Water leakage d:Free lime e:Free lime+Rust fluid
		Concrete block/ masonry	Deformation	○	○	a:Not found b:- c:- d:- e:Found

【Crack on slab】

Crack phenomenon	
a	<p>【Crack spacing & crack characteristic】 Crack has occurred only on one direction and more than 1.0m as minimum crack spacing.</p> <p>【Crack width】 Less than 0.05mm of maximum crack width (such as hair crack)</p> 
b	<p>【Crack spacing & crack characteristic】 Crack has mainly occurred on one direction and crack spacing of between 1.0m~0.5m, but not square-block type.</p> <p>【Crack width】 Mainly less than 0.1mm, but partly over 0.1mm.</p> 
c	<p>【Crack spacing & crack characteristic】 Crack has occurred on about 0.5m before square-block type.</p> <p>【Crack width】 Mainly less than 0.2mm, but partly over 0.2mm.</p> 
d	<p>【Crack spacing & crack characteristic】 Crack has occurred on 0.5m~0.2m and also square-block type.</p> <p>【Crack width】 Over 0.2mm and partly peeling off concrete</p> 
e	<p>【Crack spacing & crack characteristic】 Crack has occurred on less than 0.2m and mainly square-block type.</p> <p>【Crack width】 More than 0.2mm and continuously peeling off concrete</p> 

【Crack on concrete structure】

Crack phenomenon	
a	Nothing
b	Small crack width (less than 0.2mm in case of RC structure), large crack spacing (over 0.5m in case of minimum crack spacing)
c	Small crack width (less than 0.2mm in case of RC structure), small crack spacing (over 0.5m in case of minimum crack spacing) Or modest crack width (more than 0.2mm less than 0.3mm in case of RC structure), large crack spacing (more than 0.5m in case of minimum crack spacing)
d	Modest crack width (more than 0.2mm less than 0.3mm in case of RC structure), small crack spacing (more than 0.5m in case of minimum crack spacing) Or large crack width (more than 0.3mm in case of RC structure), large crack spacing (more than 0.5m in case of minimum crack spacing)
e	Large crack width (more than 0.3mm in case of RC structure), small crack spacing (less than 0.5m in case of minimum crack spacing)

Table 2 Evaluation Criteria (1/2)


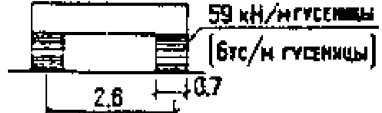


【Bridge Components and Accessories】

Structure	Member	Kinds of damage	Contents	Damage evaluation criterion(a~e) (Reference:Ministry of Land, Infrastructure, Transport and Tourism, MLIT in Japan)
Bearing shoe	Shoe	Functional deficit	Severe corrosion, damage/hardening/missing of parts	a:Not found b:- c:- d:- e:Functional deficit due to damage
		Extraordinary noises	Extraordinary noises in case of passing of vehicle	a:Not found b:- c:- d:- e:Found
	Mortar	Clogging with soil	Clogging with soil and water	a:Not found b:- c:- d:- e:Found
		Deformation/Deficit	Crack of mortar, partial deficit	a:Not found b:- c:Partially found d:- e:Severely deficit
Ancillary facilities	Railing/Guardrail	Deformation/Deficit	Broken due to collision of vehicle	a:Not found b:- c:Partially found d:- e:Severely deficit
			Dangerous location for passangers	
Deck surface	Pavement	Abnormity on pavement	Hole, big pothole, crack	a:Not found b:- c:- d:- e:Crack width is more than 5mm, etc
		Unevenness on road surface	Dangerous parts for passangers	a:Not found b:- c:less than 2cm d:- e:More than 2cm
	Expansion joint	Unevenness on road surface	Big gaps	a:Not found b:- c:less than 2cm d:- e:More than 2cm
		Abnormity at expansion gap	Broken	a:Not found b:- c:Small disconnect d:- e:Disjunction or contact
Drainage facilities		Clogging with soil	Clogging with soil and overlay	a:Not found b:- c:- d:- e:Found
		Water leak/Bearing water	Drainage facilities are broken and girder is directly affected by drained water, etc.	a:Not found b:- c:- d:- e:Water leakage/Bearing water
Whole bridge		Extraordinary deflection	Extraordinary deflection is found	a:Not found b:- c:- d:- e:Found
		Settlement/movement, titling	Settlement, movement, incline at foundation and bearing, etc.	a:Not found b:- c:- d:- e:Found
		Scouring	Scouring at pier, foundation	a:Not found b:- c:Scouring d:- e:Severe scouring
		Others	Illegal occupation, graffiti, damage by birds, damage by fire,	Only record

2) Urmalar River Bridge

Specifications of the existing Urmalar River Bridge are shown in Table 3.

Table 3 Specifications of the Existing Urmalar River Bridge

Construction year	1962	Location	E:71.9380556 N:42.5541667
Elevation	1042m	Distance from Talas city	20km West
Effective road width	7.0m (Lane) + 0.7m (Pedestrian) × 2 = 8.4m		
Live load	НГ-60  		
Superstructure	Type : RC 4-span slab bridge Bridge length : 36.2m		
Substructure	Pile bent (Steel pipe φ250)		
Photo	 <p>from Talas to Taraz</p>		 <p>from downstream to upstream</p>

As a result of the bridge inspection, this bridge is evaluated as “possible to collapse in the near future” due to below conditions.

- Steel pipes of piers have tilted.
- Existing steel pipes of piers are easy to lose by debris at snowmelt flood.
- A part of revetment at pile bent abutments has replaced due to scouring of the 2016 flood.
- The condition of existing revetment installed as emergency measure is not good.
- There is water leakage on the side of the cantilever slab
- The concrete of railing and the edge of slab have frost damage.

The condition of Urmalar River bridge is shown in Table 4, the evaluation of condition is shown in Table 5 and Table 6.

Table 4 Condition of the Existing Urmara River Bridge

<p>Dimension</p>	<p>【Cross section at piers】</p> <p>8.8m 0.9m 7.0m 0.9m 0.95m 0.6m Pile $\phi 250$ 4.1m</p>	<p>【Side view】</p> <p>36.2m 1.9m 8.1m 8.1m 8.1m 8.1m 1.9m ▽W.L.</p>
<p>Evaluation</p>	<p>36.2m 8.8m 0.9m 7.0m 0.9m 123° 1.9m 8.1m 8.1m 8.1m 8.1m 1.9m Replaced Tilted pile Replaced Water leakage on the side of the slab Separation of concrete ↑ River Flow</p>	









Table 5 Evaluation Results of Main Bridge Structure







Structure	Member	Damage	Damage evaluation	Memo
Super-structure	Deck Slab	Spalling/ Rebar exposure	a	
		Water leakage/ Free lime	c	Water leakage with the asphalt on the side of the slab
		Crack	a	
		peeling off	a	
		Loose part	a	
Sub structure	Body (Abut)	Crack	a	
		Spalling/ Rebar exposure	c	Spalling on the front of abutment
		Water leakage/ Free lime	a	
	Body (Pier)	Crack	a	
		Spalling/ Rebar exposure	a	
		Water leakage/ Free lime	a	
		Deformation	e	Tilt of pile
Concrete block/ masonry		Deformation	a	Reconstructed because of the damage caused by the flood







Table 6 Evaluation Results of Bridge Components and Accessories

Structure	Member	Damage	Damage evaluation	Memo	
Bearing shoe	Shoe	Functional deficit	—	This bridge type has no bearing.	
		Extraordinary noises	—		
	Mortar	Clogging with soil	—		
		Deformation/ Deficit	—		
Ancillary facilities	Railing/ Guardrail	Deformation/ Deficit	c	The railing is nothing partially.	
Deck surface	Pavement	Abnormity on pavement	e	There are the hole and the clack partially.	
		Unevenness on road surface	a		
	Expansion joint	Unevenness on road surface	Invisible	Invisible	Because of the overlay of the asphalt.
		Abnormity at expansion gap	Invisible		
Drainage facilities		Clogging with soil	nothing		
		Water leak/ Bearing water	nothing		
Whole bridge		Extraordinary deflection	a		
		Settlement/ movement, titling	a		
		Scouring	a		
		Others	—	This condition of piles is easy to deposit the flowing wood. Due to this situation, this bridge has the possibility of collapse.	

Records of inspection are shown as below.

Site Condition	Bridge Name	Urmalar River Bridge	Road Name	Taraz – Talas Road
	Location	From Taraz side	Location	From Talas side
				
	Location	From downstream of Taraz side	Location	From downstream of Talas side
				
	Location	From upstream of Taraz side	Location	From upstream of Talas side
				
	Location	Downstream direction	Location	Upstream direction
				

Bridge Name	Urmalar River Bridge			Road Name	Taraz – Talas Road			
Damage photo	Component	Slab (underside)			Component	Slab (side)		
	Damage	Soundness	Level	a	Damage	Water leakage	Level	c
	Condition	There are a few clacks. But safety level of this bridge is no problem from them.			Condition	Water leakage with the asphalt on the side of the slab.		
								
	Component	Body (Abutment)			Component	Same as on the left		
	Damage	Spalling	Level	c	Damage	Same as on the left	Level	-
	Condition	There is a spalling on the front of abutment			Condition	Yellow circled part is a pile as abutment.		
								
	Component	Body (Pier)			Component	Same as on the left		
	Damage	Deformation	Level	e	Damage	-	Level	-
Condition	There is a deformation to downstream side.			Condition	The pile and the slab are not connected.			
								

Bridge Name	Urmalar River Bridge			Road Name	Taraz – Talas Road			
Damage photo	Component	Masonry			Component	Bearing shoe		
	Damage	-	Level	-	Damage	-	Level	-
	Condition	Yellow circled part is reconstructed after collapsing due to flood last year.			Condition	This bridge type has no bearing.		
								
	Component	Railing			Component	Deck surface		
	Damage	Deformation/ Deficit	Level	c	Damage	Abnormity on pavement	Level	e
	Condition	The railing came off partially.			Condition	There are the hole and the crack partially.		
								
	Component	Drainage facilities			Component	Whole bridge		
	Damage	Water leak	Level	e	Damage	-	Level	-
	Condition	No drainage pipe.			Condition	This condition of piles is easy to deposit the flowing wood. Due to this situation, this bridge has the possibility of collapse.		
								

2. The Other Bridges

1) Target Bridges

Three bridges were inspected for the confirmation of difference/similar conditions of the existing Urmara River Bridge. One bridge is on the Talas – Taraz road and the other two bridges are upstream side from the Urmara River Bridge. The location of bridges is shown in Figure 1.

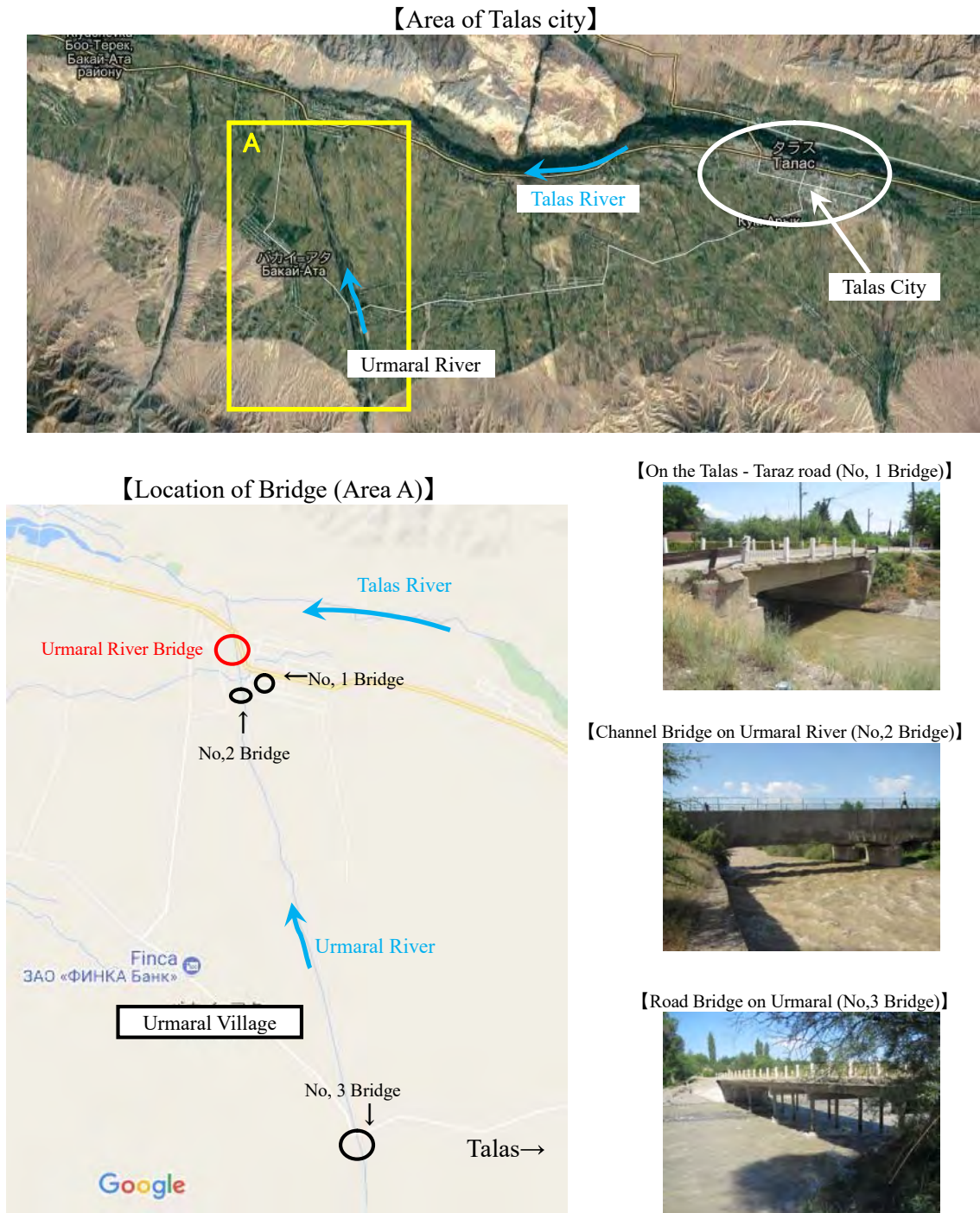








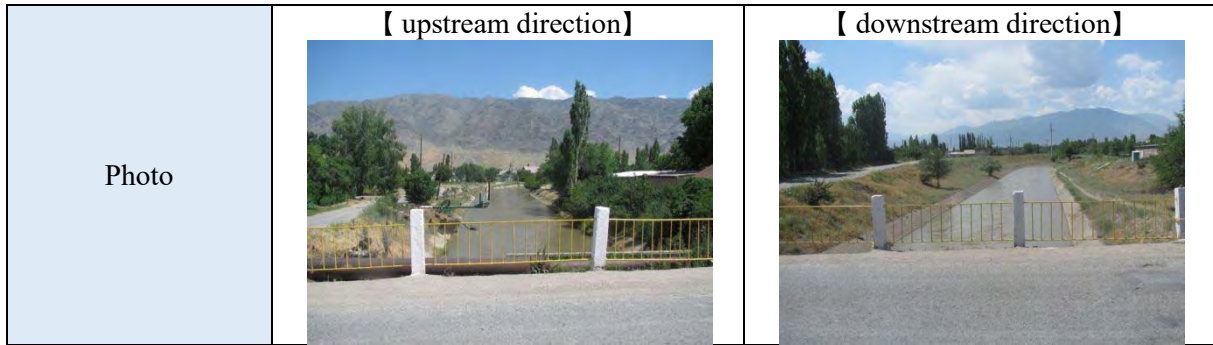
Figure 1 Location of Bridges

2) Bridge on the Talas – Taraz Road

This bridge (hereafter called as “No, 1 bridge”) is located approximately 1.3 km east from the Urmalar River Bridge. No, 1 bridge is managed by Road Asset Management Section (RAMS) organized on “The Project for Capacity Development for Maintenance Management of Bridges and Tunnels, JICA (July 2013~December 2015)” (hereinafter called “Capacity Development Project”). Specifications of No, 1 bridge are shown in Table 7.

Table 7 Specifications of No, 1 Bridge

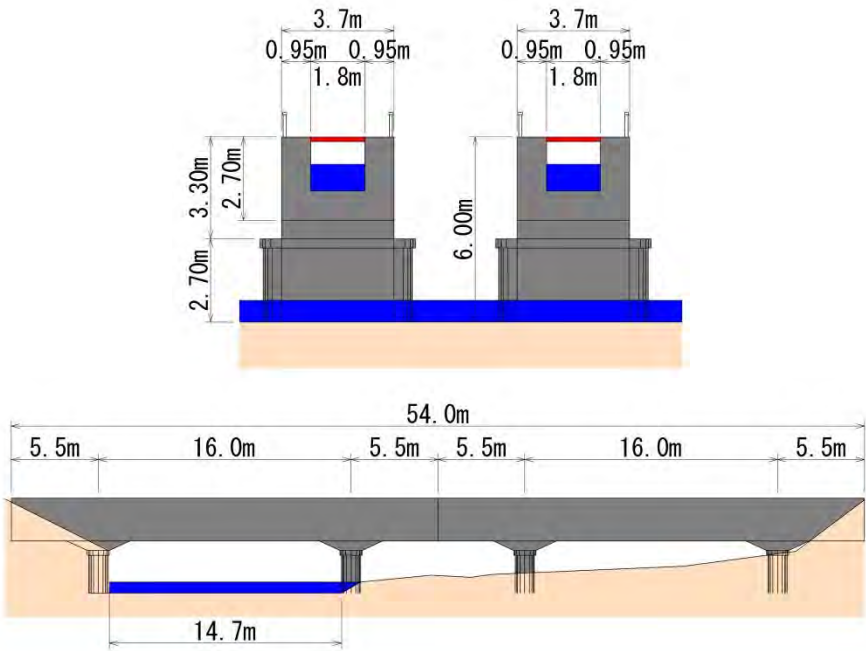
Construction year	1963	Location	E:71.9430556 N:42.5472222
Elevation	1064m	Distance from Talas City	20km West
Effective road width	8.0m (Lane)		
Live load	HF-60		
Superstructure	Type : RC 1-span T girder bridge, Bridge length : 13.5m		
Substructure	Gravity-type abutment		
Photo	【 from Taraz side】		【 from Talas side】
			
	【 from downstream of Taraz side】		【 from downstream of Talas side】
			
	【 from upstream of Taraz side】		【 from upstream of Talas side】
			

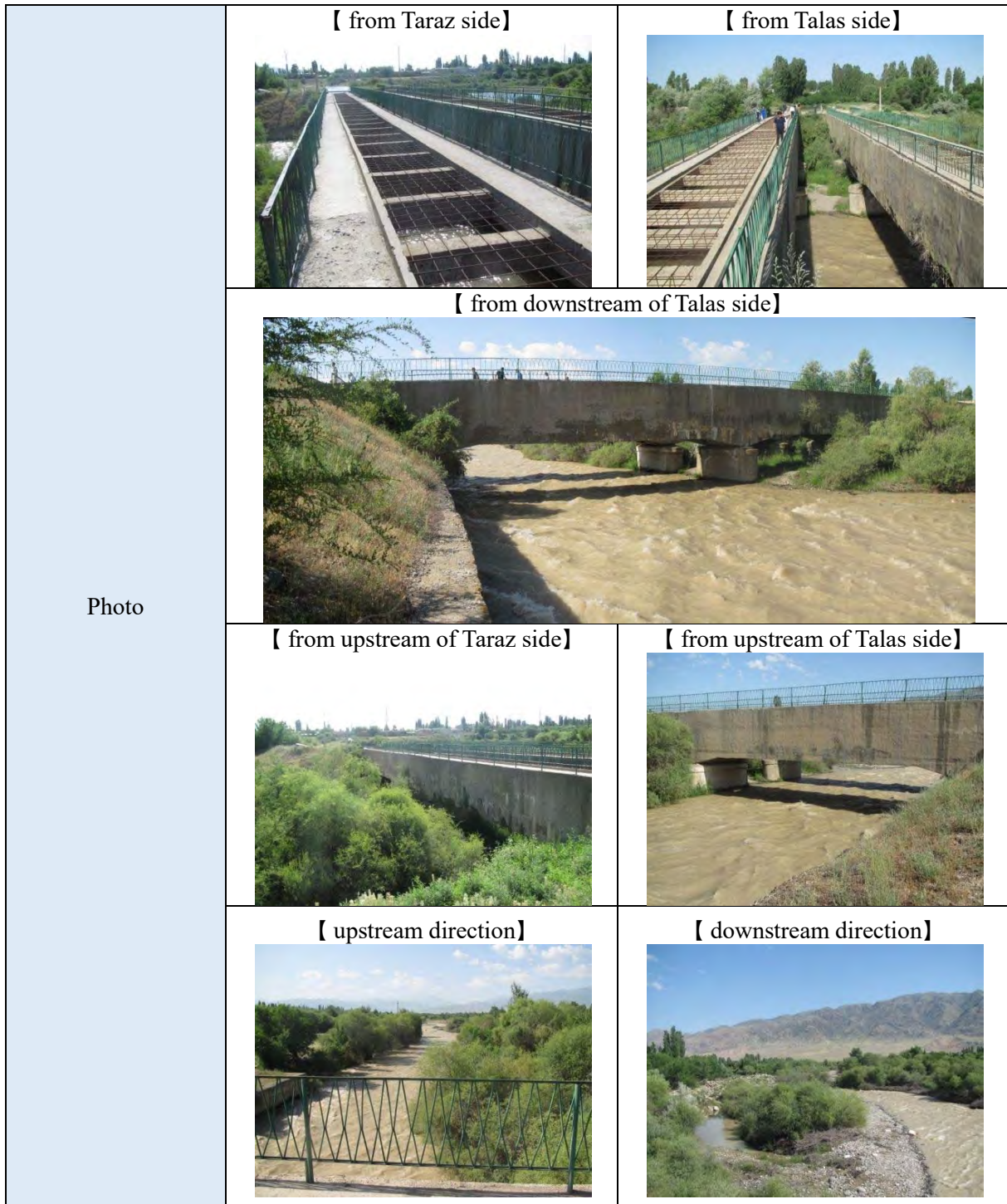


3) Channel Bridge on the Urmalar River

This bridge (hereafter called as “No, 2 bridge”) is managed by “No47-DEP” and passes over the Urmalar River as channel for irrigation. The location of No, 2 bridge is approximately 1.1 km upstream from the Urmalar River Bridge. According to the interview with the resident near this bridge, the water level of the 2016 flood was not higher than the bottom of girder. Specifications of No, 2 bridge are shown in Table 8.

Table 8 Specifications of No, 2 Bridge

Construction year	1976	Location	E:71.939336 N:42.545283
Elevation	1057m	Distance from Talas city	20km West
Effective road width	0.9m+1.8m (channel) +0.9m=2.6m		
Superstructure	Type : RC1-span U girder bridge, Bridge length : 54.0m		
Substructure	elliptical pier		
Measurements			











4) Road Bridge on the Urmalar River

This bridge (hereafter called as “No, 3 bridge”) is approximately 10 km upstream from the Urmalar River Bridge and over the Urmalar River as the road from Talas city to Urmalar village. This road connects at west side of the Urmalar River Bridge. Specifications of No, 3 Bridge is shown in Table 9.

According to the interview with the chief engineer in “No3-PLUAD”, the water level was not higher than the bottom of girder but higher than the left dike in 2016 flood.

Table 9 Specifications of No, 3 Bridge

Construction year	1961	Location	E:71.968647 N:42.462967
Elevation	1195m	Distance from Talas city	20km West
Effective road width	8.0m (Lane) *Measurement by the survey team		
Superstructure	Type : RC 5-span slab bridge		
	Bridge length : 45m *Measurement by the survey team		
Substructure	Steel pipe		
Photo	【 from Urmara1 Village side】	【 from Talas side】	
			
	【 from downstream of Urmara1 Village side】	【 from downstream of Talas side】	
			
Photo	【 from upstream of Urmara1 Village side】	【 from upstream of Talas side】	
			
	【 upstream direction】	【 downstream direction】	
			

(2) Traffic survey result

Traffic survey result (24hour observation)

(1) Outline of Traffic survey

No.	Observation Point	Date of survey
1	Tralas-Taraz Road near Chon Aryk village	Primary survey : July 16-17,2017 (Sunday-Monday)
2	Bakai Ata-Ken Aral Road near Bridge	July 19-20,2017 (Wednesday-Thursday)
3	Tralas-Taraz Road Akdobo and Ming Bulak near Ummaral River	
4	Tralas-Taraz Road Ming Bulak Village and Booterek Village	
5	Tralas-Taraz Road Chimkent and Kyzyl Adyr	Secondary survey : Sep 16-17,2017 (Saturday-Sunday)
6	Near the Kazakhstan border	Sep 19-20,2017 (Tuesday-Wednesday)

Observation Point

Survey time and Number

- Weekday and holidays (7:00 - 7:00)
- 6 location

Vehicle classification

- Drive : 9 Classification (car+ motorcycle)
- Non-Drive : 3 Classification (bicycle, Pedestrian)

(2) Traffic survey result (24hour observation)

July 16,2017 (observation point 1)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others		
	Sedan/ Wagon	Pickup/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-whe truck	3-whe truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal
7:00 ~ 8:00	160	0	100	13	3	7	3	4	0	2	0	0	7
8:00 ~ 9:00	188	0	93	3	14	10	3	2	0	6	0	0	1
9:00 ~ 9:00	222	0	137	19	9	4	1	5	0	3	0	0	1
10:00 ~ 11:00	269	0	167	21	12	6	4	2	2	2	2	2	2
11:00 ~ 12:00	303	0	186	23	11	18	6	14	0	6	0	6	12
12:00 ~ 13:00	253	0	167	14	2	15	1	4	0	8	0	8	4
13:00 ~ 14:00	265	0	195	19	1	17	4	6	0	2	0	0	1
14:00 ~ 15:00	198	0	172	13	0	7	5	3	1	0	0	0	1
15:00 ~ 16:00	211	0	167	15	0	6	8	5	1	1	0	0	2
16:00 ~ 17:00	165	0	186	12	0	5	4	8	0	0	0	0	1
17:00 ~ 18:00	165	0	205	23	0	15	9	10	0	1	0	1	1
18:00 ~ 19:00	180	1	124	17	0	7	5	6	0	1	0	2	3
19:00 ~ 20:00	186	0	96	18	0	2	5	2	0	1	2	0	4
20:00 ~ 21:00	203	1	94	19	0	7	7	2	0	4	0	4	0
21:00 ~ 22:00	161	2	120	9	0	2	1	14	0	0	0	0	1
22:00 ~ 23:00	131	1	107	9	0	6	5	4	0	1	0	0	0
23:00 ~ 24:00	89	0	76	5	1	4	4	4	0	0	0	0	0
24:00 ~ 01:00	70	0	60	2	0	5	1	2	0	0	0	0	0
01:00 ~ 02:00	50	0	50	2	0	2	0	5	0	0	0	0	0
02:00 ~ 03:00	34	0	25	0	0	6	2	4	0	0	0	0	0
03:00 ~ 04:00	21	0	10	0	0	0	0	1	0	0	0	0	0
04:00 ~ 05:00	15	0	18	1	0	3	0	0	0	0	0	0	0
05:00 ~ 06:00	48	0	27	2	0	0	0	3	0	1	0	0	0
06:00 ~ 07:00	62	0	38	1	0	6	3	2	0	3	2	0	2
Total	3649	5	2640	260	53	160	81	112	4	42	6	45	6

July 16, 2017 (observation point 3)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others				
	Minor Category	Hours	Sedan/ Wagon	Pick-up/ 4WD	Van / Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00		114	0	27	3	2	3	2	4	0	0	0	0	0	0	0
8:00 ~ 9:00		150	0	25	3	0	2	0	1	0	0	0	0	0	0	0
9:00 ~ 9:00		135	0	30	3	0	8	3	2	2	0	0	0	0	0	0
10:00 ~ 11:00		200	0	26	3	0	0	0	1	4	0	0	0	0	0	0
11:00 ~ 12:00		216	0	25	2	1	4	5	9	0	0	0	0	0	0	0
12:00 ~ 13:00		151	0	18	4	0	6	0	7	0	0	0	0	0	0	0
13:00 ~ 14:00		189	0	13	4	0	6	0	2	0	0	0	0	0	0	0
14:00 ~ 15:00		197	0	22	0	0	1	0	0	0	0	0	0	0	0	0
15:00 ~ 16:00		151	0	38	2	0	3	3	2	0	0	0	0	0	0	0
16:00 ~ 17:00		172	0	19	3	3	6	4	13	0	1	0	0	0	0	0
17:00 ~ 18:00		150	0	15	1	1	2	10	10	0	0	0	0	0	0	0
18:00 ~ 19:00		167	0	33	2	4	2	1	10	0	0	0	0	0	0	0
19:00 ~ 20:00		166	0	24	2	0	4	5	7	0	1	0	0	0	0	0
20:00 ~ 21:00		181	0	20	3	3	3	2	4	0	1	0	0	0	0	0
21:00 ~ 22:00		172	0	13	3	0	2	2	4	0	0	0	0	0	0	0
22:00 ~ 23:00		172	0	19	5	1	5	2	5	0	0	0	0	0	0	0
23:00 ~ 24:00		85	0	7	2	1	0	2	4	0	0	0	0	0	0	0
24:00 ~ 01:00		60	0	7	1	0	0	0	6	0	0	0	0	0	0	0
01:00 ~ 02:00		43	0	3	1	0	0	0	5	0	0	0	0	0	0	0
02:00 ~ 03:00		27	0	1	1	0	0	0	4	0	0	0	0	0	0	0
03:00 ~ 04:00		23	0	4	0	0	0	0	3	0	0	0	0	0	0	0
04:00 ~ 05:00		23	0	5	0	0	0	1	7	0	0	0	0	0	0	0
05:00 ~ 06:00		64	0	8	3	0	0	0	2	0	1	0	0	0	0	0
06:00 ~ 07:00		83	0	12	19	1	0	0	1	5	0	0	0	0	0	0
Total		3091	0	414	70	17	57	44	120	2	4	0	0	0	0	3

July 16, 2017 (observation point 2)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others				
	Minor Category	Hours	Sedan/ Wagon	Pick-up/ 4WD	Van / Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00		5	0	0	1	0	1	0	0	0	0	0	0	0	0	3
8:00 ~ 9:00		28	0	10	3	0	0	0	1	0	0	0	0	0	2	2
9:00 ~ 9:00		35	4	8	1	0	1	0	0	0	0	0	0	0	0	0
10:00 ~ 11:00		48	1	11	1	0	0	0	0	0	0	0	0	0	0	0
11:00 ~ 12:00		40	4	7	2	0	0	0	0	0	0	0	0	0	0	0
12:00 ~ 13:00		42	3	8	3	0	0	0	0	0	0	0	0	0	0	7
13:00 ~ 14:00		30	3	7	4	0	0	0	0	0	0	0	0	0	0	0
14:00 ~ 15:00		29	4	10	1	0	0	0	0	0	0	0	0	0	0	0
15:00 ~ 16:00		32	2	18	1	0	0	0	0	0	0	0	0	0	0	0
16:00 ~ 17:00		31	3	7	0	0	0	0	0	0	0	0	0	0	0	0
17:00 ~ 18:00		32	6	12	1	0	1	0	0	0	0	0	0	0	0	3
18:00 ~ 19:00		26	5	12	2	0	1	0	0	0	0	0	0	0	0	0
19:00 ~ 20:00		31	2	8	2	0	2	0	0	0	0	0	0	0	1	3
20:00 ~ 21:00		42	2	16	5	0	2	0	0	0	0	0	1	9	6	6
21:00 ~ 22:00		30	4	13	2	0	4	0	0	0	0	0	0	0	0	0
22:00 ~ 23:00		26	3	8	0	0	1	1	0	0	0	0	0	0	0	0
23:00 ~ 24:00		15	1	4	1	0	1	0	0	0	0	0	0	0	0	0
24:00 ~ 01:00		11	1	2	0	0	0	0	0	0	1	0	0	0	0	0
01:00 ~ 02:00		11	0	8	0	0	0	0	0	0	0	0	0	0	0	0
02:00 ~ 03:00		0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
03:00 ~ 04:00		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 ~ 05:00		2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
05:00 ~ 06:00		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 ~ 07:00		10	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total		564	48	173	30	0	14	1	1	1	1	1	1	1	17	25

July 16, 2017 (observation point 4)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
Minor Category															
Hours															
7:00 ~ 8:00	70	1	28	15	1	0	2	4	0	0	0	0	0	0	
8:00 ~ 9:00	86	1	46	13	0	0	0	3	0	0	0	0	0	1	
9:00 ~ 10:00	71	4	32	13	0	4	2	3	2	0	0	0	0	0	
10:00 ~ 11:00	78	7	37	11	8	2	3	4	1	0	0	0	0	0	
11:00 ~ 12:00	109	3	38	7	2	6	4	4	0	0	0	0	0	0	
12:00 ~ 13:00	100	6	46	8	2	2	8	9	0	0	0	0	0	0	
13:00 ~ 14:00	80	5	21	7	5	6	12	3	0	0	0	0	0	0	
14:00 ~ 15:00	98	2	50	15	2	9	11	5	0	0	0	0	0	0	
15:00 ~ 16:00	95	0	54	11	1	10	6	7	0	0	0	0	0	0	
16:00 ~ 17:00	112	2	43	6	3	5	4	6	0	0	0	0	0	0	
17:00 ~ 18:00	84	2	40	9	4	7	3	9	0	2	0	0	0	0	
18:00 ~ 19:00	100	4	46	5	5	3	0	4	0	0	0	0	0	0	
19:00 ~ 20:00	91	0	47	2	1	8	4	3	0	0	0	0	0	0	
20:00 ~ 21:00	77	0	45	6	1	4	2	2	0	0	0	0	0	0	
21:00 ~ 22:00	85	0	43	2	1	2	2	1	0	0	0	0	0	0	
22:00 ~ 23:00	68	0	33	3	1	3	2	1	0	0	0	0	0	0	
23:00 ~ 24:00	31	0	20	0	1	0	3	0	0	0	0	0	0	0	
24:00 ~ 01:00	19	0	12	1	0	1	1	1	0	0	0	0	0	0	
01:00 ~ 02:00	27	0	10	0	0	1	0	2	0	0	0	0	0	0	
02:00 ~ 03:00	17	0	6	0	0	0	3	1	0	0	0	0	0	0	
03:00 ~ 04:00	10	0	3	0	0	1	2	1	0	0	0	0	0	0	
04:00 ~ 05:00	9	0	1	1	0	0	0	1	0	0	0	0	0	0	
05:00 ~ 06:00	20	0	13	5	0	2	0	0	0	0	0	0	0	0	
06:00 ~ 07:00	27	0	24	3	0	2	3	4	0	0	0	0	0	0	
Total	1558	37	726	143	38	78	77	78	3	2	0	1	0	1	

July 16, 2017 (observation point 5)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
Minor Category															
Hours															
7:00 ~ 8:00	82	0	11	1	1	1	3	0	0	1	0	0	0	0	
8:00 ~ 9:00	92	0	7	9	0	0	5	0	0	0	0	0	0	0	
9:00 ~ 10:00	127	0	7	9	1	1	1	1	1	1	0	2	0	0	
10:00 ~ 11:00	142	0	5	6	0	0	1	0	0	0	0	0	5	2	
11:00 ~ 12:00	114	0	5	3	0	1	1	1	1	0	0	0	0	0	
12:00 ~ 13:00	94	0	5	7	1	1	1	1	1	0	0	0	0	0	
13:00 ~ 14:00	81	0	8	6	0	4	3	0	0	0	0	0	0	0	
14:00 ~ 15:00	65	0	3	1	0	1	0	0	0	0	1	0	1	0	
15:00 ~ 16:00	86	0	6	7	0	0	3	0	0	0	0	0	0	0	
16:00 ~ 17:00	82	0	8	3	0	1	3	2	0	0	0	0	0	0	
17:00 ~ 18:00	71	3	9	3	0	1	0	1	0	1	0	0	0	0	
18:00 ~ 19:00	82	0	7	3	0	0	2	0	0	0	0	0	0	0	
19:00 ~ 20:00	63	0	8	0	0	1	2	0	0	0	2	5	4	0	
20:00 ~ 21:00	79	0	5	1	0	3	1	1	1	0	2	0	0	0	
21:00 ~ 22:00	78	0	4	0	2	0	1	0	0	0	0	0	0	0	
22:00 ~ 23:00	65	0	1	0	1	0	1	0	0	0	0	0	0	0	
23:00 ~ 24:00	30	0	1	0	1	1	0	1	0	1	0	0	0	0	
24:00 ~ 01:00	23	0	0	0	1	0	0	0	0	0	0	0	0	0	
01:00 ~ 02:00	20	0	0	0	0	0	0	0	0	0	0	0	0	0	
02:00 ~ 03:00	7	0	0	0	0	0	1	0	0	0	0	0	0	0	
03:00 ~ 04:00	6	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:00 ~ 05:00	6	0	0	0	0	1	1	0	0	0	0	0	0	0	
05:00 ~ 06:00	9	0	3	0	3	1	0	2	0	0	0	0	0	0	
06:00 ~ 07:00	28	0	3	0	3	0	3	1	0	0	0	0	0	0	
Total	1532	3	106	59	14	18	31	10	0	8	10	0	8	10	

July 16, 2017 (observation point 6)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	66	0	17	23	0	0	0	3	0	2	0	0	0	0	
8:00 ~ 9:00	84	0	25	4	0	0	4	5	0	0	0	0	0	0	
9:00 ~ 10:00	84	0	18	15	0	1	1	1	0	1	0	1	0	0	
10:00 ~ 11:00	66	0	22	13	0	2	2	4	0	0	0	0	7	0	
11:00 ~ 12:00	75	0	24	11	0	4	1	2	0	1	0	1	0	3	
12:00 ~ 13:00	72	0	16	14	0	1	1	2	0	2	0	0	0	0	
13:00 ~ 14:00	54	0	24	13	0	2	1	1	0	0	0	0	0	0	
14:00 ~ 15:00	67	0	21	4	0	0	1	1	0	0	0	0	0	0	
15:00 ~ 16:00	83	0	20	18	0	3	2	3	0	1	1	0	0	0	
16:00 ~ 17:00	76	0	26	21	0	1	2	1	0	0	0	0	0	0	
17:00 ~ 18:00	74	0	13	17	0	0	1	3	0	1	0	0	0	0	
18:00 ~ 19:00	73	0	14	17	0	2	1	4	0	0	0	0	0	0	
19:00 ~ 20:00	87	1	14	16	0	1	1	1	0	0	0	0	0	2	
20:00 ~ 21:00	83	0	15	12	0	2	0	1	0	0	0	0	0	0	
21:00 ~ 22:00	60	0	14	4	0	2	1	3	0	0	0	0	0	0	
22:00 ~ 23:00	75	0	14	3	0	0	0	4	0	0	0	0	0	0	
23:00 ~ 24:00	52	0	10	6	0	1	3	5	0	0	0	0	0	0	
24:00 ~ 01:00	42	0	6	2	0	1	0	2	0	0	0	0	0	0	
01:00 ~ 02:00	23	0	5	2	0	2	0	0	0	0	0	0	0	0	
02:00 ~ 03:00	20	0	3	1	0	3	0	0	0	0	0	0	0	0	
03:00 ~ 04:00	16	0	5	2	0	1	0	6	0	0	0	0	0	0	
04:00 ~ 05:00	22	0	11	3	1	3	1	0	0	0	0	0	0	0	
05:00 ~ 06:00	31	0	9	6	0	0	3	2	0	0	0	0	0	0	
06:00 ~ 07:00	39	0	13	7	0	0	0	1	0	0	0	0	0	0	
Total	1424	1	359	234	1	32	26	55	0	8	1	12	1	12	

July 19, 2017 (observation point 1)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	136	1	69	9	0	5	8	6	0	0	0	0	0	7	
8:00 ~ 9:00	184	1	87	13	0	4	18	7	0	1	0	0	0	4	
9:00 ~ 10:00	205	1	122	17	0	15	15	8	0	1	0	0	0	0	
10:00 ~ 11:00	282	1	111	15	0	10	15	8	0	1	0	1	0	1	
11:00 ~ 12:00	296	0	116	21	0	17	24	0	0	0	0	0	0	1	
12:00 ~ 13:00	273	0	116	26	0	10	13	6	0	1	0	1	0	1	
13:00 ~ 14:00	224	1	157	4	0	9	14	0	1	0	0	0	0	5	
14:00 ~ 15:00	248	0	127	6	0	9	24	6	0	3	0	2	0	2	
15:00 ~ 16:00	242	0	137	11	0	10	16	2	0	0	0	0	0	3	
16:00 ~ 17:00	210	1	121	11	0	7	21	6	0	3	0	0	0	4	
17:00 ~ 18:00	202	0	127	16	0	6	7	1	0	2	0	0	0	3	
18:00 ~ 19:00	223	2	122	14	0	5	12	4	0	2	0	0	0	0	
19:00 ~ 20:00	169	0	120	10	0	3	10	5	1	1	6	3	0	3	
20:00 ~ 21:00	197	1	96	4	0	11	5	5	0	5	2	7	0	7	
21:00 ~ 22:00	139	0	77	3	0	4	2	2	0	2	0	0	0	5	
22:00 ~ 23:00	127	0	58	2	0	6	5	1	1	1	0	0	0	0	
23:00 ~ 24:00	79	0	55	1	0	3	1	4	0	1	0	0	0	0	
24:00 ~ 01:00	55	0	29	1	0	4	1	0	0	0	0	0	0	0	
01:00 ~ 02:00	14	0	27	0	0	3	1	5	0	0	0	0	0	0	
02:00 ~ 03:00	22	0	17	1	0	2	1	4	0	0	0	0	0	0	
03:00 ~ 04:00	22	0	14	2	0	2	0	6	0	0	0	0	0	0	
04:00 ~ 05:00	22	0	21	0	0	4	0	8	0	0	0	0	0	0	
05:00 ~ 06:00	31	0	15	3	0	1	0	5	0	0	0	1	0	0	
06:00 ~ 07:00	65	0	35	3	0	7	11	9	0	2	3	2	0	2	
Total	3667	9	1978	193	0	157	224	108	3	25	12	18	1	48	

July 19, 2017 (observation point 2)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others		
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
Minor Category														
Hours														
7:00 ~ 8:00	12	2	1	0	0	1	0	0	0	0	1	2	2	0
8:00 ~ 9:00	37	2	19	3	0	0	1	0	0	0	3	0	5	0
9:00 ~ 10:00	46	3	18	3	0	1	0	0	0	0	0	0	0	0
10:00 ~ 11:00	47	2	21	0	0	0	0	0	0	0	2	0	3	0
11:00 ~ 12:00	39	5	18	1	0	0	0	0	0	0	0	0	1	0
12:00 ~ 13:00	45	2	15	3	0	0	0	0	0	0	2	0	4	0
13:00 ~ 14:00	48	2	14	3	0	1	0	0	1	0	0	0	0	0
14:00 ~ 15:00	47	0	18	0	0	1	0	0	0	0	0	0	0	0
15:00 ~ 16:00	46	2	18	0	0	0	0	0	0	1	1	0	3	0
16:00 ~ 17:00	42	3	14	1	0	1	0	0	0	0	0	0	2	0
17:00 ~ 18:00	40	3	11	2	0	1	0	0	0	0	0	0	0	0
18:00 ~ 19:00	34	0	6	0	0	2	0	0	0	0	0	0	2	0
19:00 ~ 20:00	37	2	10	0	0	0	0	0	0	0	0	2	3	0
20:00 ~ 21:00	35	1	11	2	0	1	0	0	0	0	0	0	5	8
21:00 ~ 22:00	35	0	12	1	0	1	0	0	0	0	1	0	2	0
22:00 ~ 23:00	32	0	3	0	0	1	0	0	0	0	0	0	0	0
23:00 ~ 24:00	22	0	7	1	0	0	0	0	0	0	0	0	0	0
24:00 ~ 01:00	14	0	8	0	0	0	0	0	0	0	0	0	0	0
01:00 ~ 02:00	9	0	1	0	0	0	0	0	0	0	0	0	0	0
02:00 ~ 03:00	8	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 ~ 04:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 ~ 05:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 ~ 06:00	4	0	5	1	0	0	0	0	0	0	0	0	0	0
06:00 ~ 07:00	7	0	2	2	0	1	0	0	0	0	0	0	6	2
Total	691	29	232	23	0	12	1	0	2	10	2	15	37	0

July 19, 2017 (observation point 3)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others		
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
Minor Category														
Hours														
7:00 ~ 8:00	168	2	19	2	0	3	3	1	0	0	0	0	0	0
8:00 ~ 9:00	196	0	33	1	0	2	2	3	0	0	0	0	0	0
9:00 ~ 10:00	223	0	35	4	0	2	1	5	0	0	0	0	0	0
10:00 ~ 11:00	278	0	22	2	0	8	9	4	0	0	0	0	0	0
11:00 ~ 12:00	213	0	24	6	0	8	4	6	0	0	0	0	0	0
12:00 ~ 13:00	200	0	32	2	0	9	0	3	1	0	0	0	0	0
13:00 ~ 14:00	190	0	30	0	0	1	2	4	0	0	0	0	0	0
14:00 ~ 15:00	200	0	29	1	0	8	5	8	0	0	0	0	0	0
15:00 ~ 16:00	204	0	26	2	0	5	0	1	0	0	0	0	0	0
16:00 ~ 17:00	164	0	33	3	1	5	6	3	0	0	0	0	0	0
17:00 ~ 18:00	214	0	33	1	0	4	5	3	0	0	0	0	0	0
18:00 ~ 19:00	183	3	28	1	0	4	6	4	0	0	0	0	0	0
19:00 ~ 20:00	118	0	24	5	2	1	2	13	0	0	0	0	0	0
20:00 ~ 21:00	189	0	30	5	1	0	0	8	0	0	0	0	0	0
21:00 ~ 22:00	202	3	19	5	0	3	3	8	0	0	0	0	0	0
22:00 ~ 23:00	154	0	17	1	1	3	1	5	0	0	0	0	0	0
23:00 ~ 24:00	105	0	15	1	2	7	0	5	1	0	0	0	0	0
24:00 ~ 01:00	64	0	7	0	0	3	0	5	0	0	0	0	0	0
01:00 ~ 02:00	48	0	5	2	0	0	1	1	0	0	0	0	0	0
02:00 ~ 03:00	31	0	5	2	0	0	0	7	0	0	0	0	0	0
03:00 ~ 04:00	34	0	3	2	0	0	0	6	0	0	0	0	0	0
04:00 ~ 05:00	23	0	6	0	0	0	0	3	0	0	0	0	0	0
05:00 ~ 06:00	27	0	9	2	0	1	0	8	0	0	0	0	0	0
06:00 ~ 07:00	70	0	25	0	1	0	0	1	0	0	0	0	0	0
Total	2498	8	509	50	8	77	50	115	2	0	0	0	0	0

July 19, 2017 (observation point 4)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	
7:00 ~ 8:00	65	0	29	12	1	6	6	8	0	0	0	0	0	0	
8:00 ~ 9:00	92	0	29	2	5	6	4	3	0	1	0	0	0		
9:00 ~ 10:00	113	0	56	4	3	11	0	6	0	1	0	0	0		
10:00 ~ 11:00	114	1	51	4	0	6	7	4	0	2	0	0	0		
11:00 ~ 12:00	130	7	53	4	0	5	6	6	0	0	0	0	0		
12:00 ~ 13:00	134	1	42	1	0	3	10	6	0	0	0	0	0		
13:00 ~ 14:00	107	1	29	5	0	3	6	7	0	0	0	0	0		
14:00 ~ 15:00	118	0	40	10	1	5	10	4	0	0	0	0	0		
15:00 ~ 16:00	108	1	46	8	1	3	12	1	0	0	0	0	0		
16:00 ~ 17:00	118	1	37	14	5	6	6	2	0	0	0	0	0		
17:00 ~ 18:00	111	0	28	13	2	3	3	8	0	0	0	0	0		
18:00 ~ 19:00	103	3	24	9	2	4	9	3	0	0	0	0	0		
19:00 ~ 20:00	85	0	21	3	0	2	4	9	0	0	0	0	0		
20:00 ~ 21:00	98	0	25	5	0	2	2	7	0	0	0	0	0		
21:00 ~ 22:00	72	1	26	2	1	5	1	3	0	0	0	0	0		
22:00 ~ 23:00	63	0	33	4	0	5	1	3	0	0	0	0	0		
23:00 ~ 24:00	52	0	19	1	1	8	3	3	0	0	0	0	0		
24:00 ~ 01:00	35	0	19	2	0	6	0	3	0	0	0	0	0		
01:00 ~ 02:00	21	0	11	2	0	2	0	2	0	0	0	0	0		
02:00 ~ 03:00	29	0	21	1	0	4	1	2	0	0	0	0	0		
03:00 ~ 04:00	22	0	11	1	0	2	0	4	0	0	0	0	0		
04:00 ~ 05:00	21	0	16	0	0	0	0	2	0	0	0	0	0		
05:00 ~ 06:00	18	0	15	4	1	3	2	8	0	0	0	0	0		
06:00 ~ 07:00	28	0	25	5	1	4	0	3	0	0	0	0	0		
Total	1857	16	766	116	24	104	93	107	0	3	1	0	0		

July 19, 2017 (observation point 5)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	Icons	
7:00 ~ 8:00	73	0	3	0	0	2	4	1	0	0	0	0	0		
8:00 ~ 9:00	145	1	15	5	1	5	2	1	0	2	0	0	0		
9:00 ~ 10:00	181	1	9	8	0	3	1	2	0	0	0	0	0		
10:00 ~ 11:00	156	0	6	9	0	3	4	1	0	0	0	0	0		
11:00 ~ 12:00	186	0	14	6	0	4	5	2	0	0	0	0	0		
12:00 ~ 13:00	108	0	8	4	0	2	2	4	0	0	0	0	0		
13:00 ~ 14:00	137	1	10	3	0	7	3	3	0	0	0	0	0		
14:00 ~ 15:00	159	0	4	2	0	4	5	1	0	0	0	0	0		
15:00 ~ 16:00	99	0	9	2	0	6	4	1	0	0	0	0	0		
16:00 ~ 17:00	115	0	6	3	0	5	10	0	0	0	0	0	0		
17:00 ~ 18:00	97	0	6	1	0	1	3	0	0	0	0	0	0		
18:00 ~ 19:00	92	0	5	8	0	1	1	3	0	0	0	0	0		
19:00 ~ 20:00	80	0	9	1	0	5	0	2	0	0	0	0	0		
20:00 ~ 21:00	74	0	1	2	0	0	0	9	1	0	0	0	0		
21:00 ~ 22:00	61	0	3	2	1	2	0	4	0	0	0	0	0		
22:00 ~ 23:00	57	0	5	1	1	4	5	0	0	0	0	0	0		
23:00 ~ 24:00	29	0	0	0	0	1	4	1	1	0	0	0	0		
24:00 ~ 01:00	32	0	1	0	0	0	0	2	2	0	0	0	0		
01:00 ~ 02:00	17	0	1	0	0	1	1	1	0	0	0	0	0		
02:00 ~ 03:00	14	0	2	0	0	0	1	0	0	0	0	0	0		
03:00 ~ 04:00	2	0	2	0	0	0	0	0	0	0	0	0	0		
04:00 ~ 05:00	12	0	5	1	0	0	0	0	0	0	0	0	0		
05:00 ~ 06:00	11	0	0	0	0	1	0	4	0	0	0	0	0		
06:00 ~ 07:00	32	0	4	1	1	0	3	0	0	0	0	0	0		
Total	1969	3	128	59	6	59	70	29	0	2	0	0	0		

July 19, 2017 (observation point 6)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	57	0	17	9	0	5	0	1	0	0	0	0	0	0	
8:00 ~ 9:00	105	0	15	9	0	0	1	8	0	0	0	0	0	0	
9:00 ~ 10:00	86	0	23	7	0	3	0	9	0	0	0	0	0	0	
10:00 ~ 11:00	79	0	13	12	0	0	2	2	0	0	0	0	0	2	
11:00 ~ 12:00	105	0	25	9	0	0	0	3	0	0	0	0	0	0	
12:00 ~ 13:00	88	0	17	7	0	4	5	7	0	0	0	0	0	0	
13:00 ~ 14:00	67	0	22	4	0	3	4	5	0	0	0	0	0	0	
14:00 ~ 15:00	83	0	26	3	0	2	0	2	0	0	0	0	0	0	
15:00 ~ 16:00	79	0	29	18	0	5	3	1	0	0	0	0	0	0	
16:00 ~ 17:00	78	0	15	16	0	2	2	15	0	0	0	0	0	0	
17:00 ~ 18:00	85	0	21	16	0	1	0	3	0	0	0	0	0	0	
18:00 ~ 19:00	78	0	21	8	0	6	0	8	1	0	0	0	0	0	
19:00 ~ 20:00	75	0	28	16	0	0	0	9	0	1	0	0	0	0	
20:00 ~ 21:00	70	0	8	14	0	1	1	10	0	0	0	0	0	0	
21:00 ~ 22:00	70	0	15	7	0	1	0	6	0	0	0	0	0	0	
22:00 ~ 23:00	65	0	10	11	0	0	0	6	0	0	0	0	0	0	
23:00 ~ 24:00	52	0	7	10	0	0	1	16	0	0	0	0	0	0	
24:00 ~ 01:00	36	0	9	5	0	0	0	7	0	0	0	0	0	0	
01:00 ~ 02:00	41	0	8	11	1	1	0	7	0	0	0	0	0	0	
02:00 ~ 03:00	26	0	3	7	0	0	1	7	0	0	0	0	0	0	
03:00 ~ 04:00	42	0	5	5	0	4	0	7	0	0	0	0	0	0	
04:00 ~ 05:00	40	0	3	10	1	1	0	0	0	0	0	0	0	0	
05:00 ~ 06:00	32	0	8	3	0	2	0	1	0	0	0	0	0	0	
06:00 ~ 07:00	25	0	7	12	0	2	3	6	0	0	0	0	0	0	
Total	1565	0	355	229	2	43	23	146	1	1	1	1	0	2	

Sep 16, 2017 (observation point 1)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus	Mini truck	Standard & Large bus	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	114	2	57	23	0	7	3	4	0	0	0	0	1	701	
8:00 ~ 9:00	207	0	90	44	1	15	1	5	0	0	0	0	0	0	
9:00 ~ 10:00	259	1	121	41	0	13	7	6	0	0	0	0	0	1	
10:00 ~ 11:00	296	3	130	38	0	15	3	4	0	0	0	0	0	6	
11:00 ~ 12:00	290	0	129	20	0	10	6	8	0	0	0	0	0	0	
12:00 ~ 13:00	291	3	156	43	0	12	4	8	0	0	0	0	0	4	
13:00 ~ 14:00	206	0	107	27	0	13	7	6	0	2	0	0	2	0	
14:00 ~ 15:00	211	0	119	30	0	12	7	5	0	1	0	0	0	0	
15:00 ~ 16:00	248	2	127	31	0	13	10	8	0	2	0	0	0	4	
16:00 ~ 17:00	248	0	145	36	0	16	11	6	0	0	0	0	0	1	
17:00 ~ 18:00	262	0	130	45	0	12	9	5	0	0	0	0	0	0	
18:00 ~ 19:00	239	0	135	49	0	19	8	4	0	0	0	0	0	1	
19:00 ~ 20:00	233	1	92	43	0	8	3	0	0	3	4	5	0	0	
20:00 ~ 21:00	180	0	83	30	1	4	3	1	0	0	0	0	0	0	
21:00 ~ 22:00	159	0	76	29	0	11	3	8	0	1	0	2	0	0	
22:00 ~ 23:00	104	1	47	15	0	9	1	3	0	0	0	2	0	0	
23:00 ~ 24:00	79	0	39	7	0	8	3	2	0	0	0	0	0	0	
24:00 ~ 01:00	73	0	49	8	0	3	1	5	0	0	0	0	0	0	
01:00 ~ 02:00	68	0	50	8	0	1	0	3	0	0	0	0	0	1	
02:00 ~ 03:00	43	0	36	2	0	1	0	2	0	0	0	0	0	6	
03:00 ~ 04:00	29	0	13	2	0	4	0	6	0	0	0	0	0	0	
04:00 ~ 05:00	20	0	12	6	0	5	0	1	0	0	0	0	0	0	
05:00 ~ 06:00	29	0	9	14	0	7	1	0	0	0	0	0	0	0	
06:00 ~ 07:00	98	2	28	39	0	7	3	1	0	0	0	0	0	0	
Total	3986	15	1980	629	2	225	94	101	0	10	705	42	0	0	

Sep 16, 2017 (observation point 2)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others		
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	19	2	1	0	0	0	0	0	0	0	0	0	0	0
8:00 ~ 9:00	31	5	6	2	1	0	1	0	0	0	0	0	6	2
9:00 ~ 9:00	46	4	17	3	0	0	0	1	0	0	0	0	0	2
10:00 ~ 11:00	56	5	12	2	2	0	0	2	0	0	0	0	10	1
11:00 ~ 12:00	48	1	9	1	4	2	0	1	0	2	1	1	1	1
12:00 ~ 13:00	66	2	10	2	2	1	0	0	0	0	0	0	0	0
13:00 ~ 14:00	53	4	11	7	2	0	0	0	0	1	1	33	3	0
14:00 ~ 15:00	51	3	13	11	2	1	0	0	0	0	1	0	0	0
15:00 ~ 16:00	52	4	9	10	2	2	0	0	0	1	1	1	1	1
16:00 ~ 17:00	48	3	12	5	2	1	0	0	0	2	1	0	0	0
17:00 ~ 18:00	66	9	16	3	0	1	0	1	0	6	1	0	0	0
18:00 ~ 19:00	48	9	3	8	0	2	0	0	0	0	0	0	2	0
19:00 ~ 20:00	49	4	6	4	0	0	1	2	0	0	0	5	1	0
20:00 ~ 21:00	61	5	10	8	0	0	0	0	0	0	0	0	0	0
21:00 ~ 22:00	34	1	6	7	0	0	0	0	0	0	0	0	0	0
22:00 ~ 23:00	20	4	4	6	0	0	0	0	0	0	0	0	0	0
23:00 ~ 24:00	21	0	2	3	0	0	0	0	0	0	0	0	0	0
24:00 ~ 01:00	13	1	0	1	0	1	0	0	0	0	0	0	0	0
01:00 ~ 02:00	12	0	2	2	0	0	0	0	0	0	0	0	0	0
02:00 ~ 03:00	8	0	1	2	0	0	0	0	0	0	0	0	0	0
03:00 ~ 04:00	5	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 ~ 05:00	2	0	2	1	0	0	0	0	0	0	0	0	0	0
05:00 ~ 06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 ~ 07:00	4	0	0	2	0	0	0	0	0	0	0	0	0	0
Total	807	66	152	94	18	12	1	8	1	13	63	14	63	14

Sep 16, 2017 (observation point 3)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others		
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	144	0	35	2	0	4	1	7	0	1	0	0	0	0
8:00 ~ 9:00	187	0	28	0	0	0	2	5	0	0	0	0	0	1
9:00 ~ 9:00	186	4	45	7	0	3	1	3	0	0	0	0	0	0
10:00 ~ 11:00	259	1	60	4	0	7	1	2	1	0	0	0	0	0
11:00 ~ 12:00	196	0	47	12	0	8	3	3	0	0	0	0	0	0
12:00 ~ 13:00	256	0	51	5	0	11	2	10	0	1	0	0	0	0
13:00 ~ 14:00	267	1	51	6	0	2	10	4	0	0	0	0	0	0
14:00 ~ 15:00	247	1	39	0	0	3	4	10	8	0	0	0	0	0
15:00 ~ 16:00	220	0	32	15	0	2	1	4	1	0	0	0	0	0
16:00 ~ 17:00	238	1	60	18	0	7	2	3	0	0	0	0	0	0
17:00 ~ 18:00	239	2	42	23	0	2	5	5	0	1	0	0	0	0
18:00 ~ 19:00	186	0	40	26	0	2	3	2	1	0	0	0	0	0
19:00 ~ 20:00	219	0	45	15	0	11	2	5	0	0	0	0	0	0
20:00 ~ 21:00	210	0	25	14	1	3	8	8	0	0	0	0	0	0
21:00 ~ 22:00	149	0	22	13	0	4	6	11	0	0	0	0	0	0
22:00 ~ 23:00	88	0	12	3	1	1	1	8	0	0	0	0	0	0
23:00 ~ 24:00	81	0	20	10	1	2	8	4	0	0	0	0	0	0
24:00 ~ 01:00	64	0	27	13	0	3	12	4	0	0	0	0	0	0
01:00 ~ 02:00	42	8	22	12	0	1	9	12	0	0	0	0	0	0
02:00 ~ 03:00	69	0	14	8	0	2	6	9	0	0	0	0	0	0
03:00 ~ 04:00	43	0	20	3	0	3	7	6	0	0	0	0	0	0
04:00 ~ 05:00	43	0	30	0	1	4	3	14	0	0	0	0	0	0
05:00 ~ 06:00	52	0	18	0	1	3	10	9	0	0	0	0	0	0
06:00 ~ 07:00	66	0	32	0	0	11	6	15	0	0	0	0	0	0
Total	3751	18	817	209	5	99	113	163	11	3	0	0	0	1

Sep 16, 2017 (observation point 4)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus truck	Standard & Large bus truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	90	2	13	11	1	9	3	3	0	0	0	0	
8:00 ~ 9:00	140	5	14	3	0	7	5	6	0	0	0	0	
9:00 ~ 10:00	131	1	14	5	0	5	3	0	0	0	0	0	
10:00 ~ 11:00	160	13	27	1	1	9	9	0	0	0	0	0	
11:00 ~ 12:00	179	13	21	3	1	16	6	3	0	0	0	0	
12:00 ~ 13:00	203	16	29	4	0	13	13	4	0	0	0	1	
13:00 ~ 14:00	197	16	52	8	1	14	7	2	0	0	0	0	
14:00 ~ 15:00	150	8	26	1	2	14	18	6	0	0	0	0	
15:00 ~ 16:00	212	4	28	0	4	5	11	4	0	0	0	0	
16:00 ~ 17:00	210	5	26	5	1	8	3	8	0	0	0	0	
17:00 ~ 18:00	155	2	20	6	2	9	5	5	1	0	0	0	
18:00 ~ 19:00	138	0	33	9	2	3	9	2	0	0	0	0	
19:00 ~ 20:00	170	6	14	5	4	5	8	1	0	0	0	0	
20:00 ~ 21:00	138	0	4	10	4	7	4	8	0	0	0	0	
21:00 ~ 22:00	79	0	3	7	3	1	7	5	0	0	0	0	
22:00 ~ 23:00	74	6	3	5	1	4	2	6	0	0	0	0	
23:00 ~ 24:00	62	0	1	2	2	2	2	5	0	0	0	0	
24:00 ~ 01:00	36	1	1	7	1	3	4	2	0	0	0	0	
01:00 ~ 02:00	35	1	3	5	1	2	3	4	0	0	0	0	
02:00 ~ 03:00	62	0	2	4	0	1	9	2	0	0	0	0	
03:00 ~ 04:00	21	0	0	3	1	1	2	2	0	0	0	0	
04:00 ~ 05:00	22	0	0	3	1	3	0	0	0	0	0	0	
05:00 ~ 06:00	44	0	2	8	0	7	0	2	0	0	0	0	
06:00 ~ 07:00	52	5	2	18	2	6	7	1	0	0	0	0	
Total	2754	104	338	133	35	154	140	81	1	0	0	1	

Sep 16, 2017 (observation point 5)

Major category	I: Light vehicles		II: Medium vehicles			III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus truck	Standard & Large bus truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker	
7:00 ~ 8:00	182	0	14	7	0	17	3	0	0	0	0	0	
8:00 ~ 9:00	367	2	22	5	1	3	2	3	1	0	1	1	
9:00 ~ 10:00	359	1	11	9	0	1	3	2	0	0	0	0	
10:00 ~ 11:00	268	2	10	3	0	1	5	1	0	0	0	0	
11:00 ~ 12:00	296	3	9	8	0	8	6	2	0	1	1	1	
12:00 ~ 13:00	362	1	17	25	1	9	9	0	0	0	0	0	
13:00 ~ 14:00	318	0	12	6	0	11	8	0	0	0	0	0	
14:00 ~ 15:00	228	0	13	7	0	2	3	0	0	0	0	0	
15:00 ~ 16:00	216	0	13	8	0	1	8	0	0	0	0	0	
16:00 ~ 17:00	128	0	6	0	0	6	3	0	0	0	0	0	
17:00 ~ 18:00	134	0	10	2	0	2	9	1	0	0	0	1	
18:00 ~ 19:00	100	0	14	0	0	3	7	2	0	0	0	0	
19:00 ~ 20:00	108	0	5	2	0	2	9	2	0	0	0	1	
20:00 ~ 21:00	120	0	4	1	0	1	2	6	0	0	0	0	
21:00 ~ 22:00	96	0	5	0	0	0	3	0	0	0	0	0	
22:00 ~ 23:00	48	0	5	0	1	2	2	0	0	0	0	0	
23:00 ~ 24:00	44	0	0	0	1	0	4	0	0	0	0	0	
24:00 ~ 01:00	25	0	2	0	1	0	0	1	0	0	0	0	
01:00 ~ 02:00	31	0	2	0	0	0	2	0	0	0	0	0	
02:00 ~ 03:00	11	0	0	0	1	2	0	0	0	0	0	0	
03:00 ~ 04:00	14	0	0	0	0	0	0	0	0	0	0	0	
04:00 ~ 05:00	17	0	0	0	0	0	3	0	0	0	0	0	
05:00 ~ 06:00	16	0	0	2	3	0	0	0	0	0	0	0	
06:00 ~ 07:00	20	0	2	3	1	1	2	0	0	0	0	0	
Total	3508	9	176	88	10	72	93	20	1	1	2	4	

Sep 16,2017 (observation point 6)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus truck	Mini truck	Standard & Large bus truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker		
7:00 ~ 8:00	57	0	17	9	0	5	0	1	0	0	0	0	0		
8:00 ~ 9:00	105	0	15	9	0	0	1	8	0	0	0	0	0		
9:00 ~ 9:00	86	0	23	7	0	3	0	9	0	0	0	0	0		
10:00 ~ 11:00	79	0	13	12	0	0	2	2	0	0	0	2	0		
11:00 ~ 12:00	105	0	25	9	0	0	0	3	0	0	0	0	0		
12:00 ~ 13:00	88	0	17	7	0	4	5	7	0	0	0	0	0		
13:00 ~ 14:00	67	0	22	4	0	3	4	5	0	0	0	0	0		
14:00 ~ 15:00	83	0	26	3	0	2	0	2	0	0	0	0	0		
15:00 ~ 16:00	79	0	29	18	0	5	3	1	0	0	0	0	0		
16:00 ~ 17:00	78	0	15	16	0	2	2	15	0	0	0	0	0		
17:00 ~ 18:00	85	0	21	16	0	1	0	3	0	0	0	0	0		
18:00 ~ 19:00	78	0	21	8	0	6	0	8	1	0	0	0	0		
19:00 ~ 20:00	75	0	28	16	0	0	0	9	0	1	0	0	0		
20:00 ~ 21:00	70	0	8	14	0	1	1	10	0	0	0	0	0		
21:00 ~ 22:00	70	0	15	7	0	1	0	6	0	0	0	0	0		
22:00 ~ 23:00	65	0	10	11	0	0	0	6	0	0	0	0	0		
23:00 ~ 24:00	52	0	7	10	0	0	1	16	0	0	0	0	0		
24:00 ~ 01:00	36	0	9	5	0	0	0	7	0	0	0	0	0		
01:00 ~ 02:00	41	0	8	11	1	1	0	7	0	0	0	0	0		
02:00 ~ 03:00	26	0	3	7	0	0	1	7	0	0	0	0	0		
03:00 ~ 04:00	42	0	5	5	0	4	0	7	0	0	0	0	0		
04:00 ~ 05:00	40	0	3	10	1	1	0	0	0	0	0	0	0		
05:00 ~ 06:00	32	0	8	3	0	2	0	1	0	0	0	0	0		
06:00 ~ 07:00	25	0	7	12	0	2	3	6	0	0	0	0	0		
Total	1565	0	355	229	2	43	23	146	1	1	1	0	2		

Sep 19,2017 (observation point 1)

Major category	I: Light vehicles		II: Medium vehicles				III: Heavy vehicles				IV: 2-Wheel vehicles			V: Others	
	Sedan/ Wagon	Pick-up/ 4WD	Van/ Mini bus truck	Mini truck	Standard & Large bus truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker		
7:00 ~ 8:00	92	2	58	23	0	5	2	5	0	4	700	0	0		
8:00 ~ 9:00	192	2	97	38	0	11	1	5	0	0	0	0	0		
9:00 ~ 9:00	253	2	128	43	0	8	4	7	0	2	0	2	0		
10:00 ~ 11:00	261	4	134	49	0	8	6	5	0	1	0	7	0		
11:00 ~ 12:00	258	0	127	38	0	4	4	7	0	0	0	0	0		
12:00 ~ 13:00	244	2	137	42	0	7	3	8	0	0	0	0	0		
13:00 ~ 14:00	156	0	83	21	0	7	0	10	0	1	0	2	0		
14:00 ~ 15:00	159	1	74	24	0	5	1	5	0	0	0	1	0		
15:00 ~ 16:00	200	2	73	25	0	6	3	8	0	1	0	3	0		
16:00 ~ 17:00	185	4	79	25	0	7	4	6	0	1	0	2	0		
17:00 ~ 18:00	191	1	105	33	0	4	7	7	0	0	1	2	0		
18:00 ~ 19:00	185	0	113	36	0	9	3	5	0	0	0	1	0		
19:00 ~ 20:00	274	0	112	45	0	12	2	1	0	4	6	8	0		
20:00 ~ 21:00	185	0	92	30	1	9	3	2	0	1	0	2	0		
21:00 ~ 22:00	145	0	70	24	0	10	1	6	0	0	0	0	0		
22:00 ~ 23:00	119	0	56	12	0	6	4	4	0	0	0	1	0		
23:00 ~ 24:00	75	0	39	9	0	7	2	1	0	0	0	0	0		
24:00 ~ 01:00	50	0	36	14	0	3	1	5	0	0	0	0	0		
01:00 ~ 02:00	47	0	28	7	0	0	0	5	0	0	0	1	0		
02:00 ~ 03:00	26	0	23	8	0	0	0	1	0	0	0	0	0		
03:00 ~ 04:00	16	0	12	7	0	0	0	4	0	0	0	0	0		
04:00 ~ 05:00	11	0	11	8	0	4	0	2	0	0	0	0	0		
05:00 ~ 06:00	26	0	11	15	0	5	1	2	0	0	0	0	0		
06:00 ~ 07:00	82	1	33	42	0	8	2	1	0	2	6	2	0		
Total	3432	21	1731	618	1	145	54	112	0	17	713	44	0		

Sep 19,2017 (observation point 2)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others			
	Sedan/ Wagon	Pick-up/ 4WD	Van./ Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	21	2	6	3	0	1	1	0	0	0	1	12	3	0
8:00 ~ 9:00	35	3	9	3	0	0	0	1	0	0	3	2	3	0
9:00 ~ 10:00	49	3	22	7	0	3	0	1	1	1	0	1	5	0
10:00 ~ 11:00	63	8	21	5	0	2	0	0	0	0	0	0	0	0
11:00 ~ 12:00	55	2	20	6	0	0	0	2	0	0	0	5	1	0
12:00 ~ 13:00	50	5	18	5	0	2	0	1	0	0	0	0	1	0
13:00 ~ 14:00	47	5	14	4	0	0	0	0	0	0	0	5	2	0
14:00 ~ 15:00	47	3	12	4	0	1	0	0	0	0	0	0	0	0
15:00 ~ 16:00	46	10	16	2	0	0	0	0	0	0	0	0	5	0
16:00 ~ 17:00	54	2	12	1	0	5	0	1	0	0	0	0	0	0
17:00 ~ 18:00	57	4	15	7	0	2	1	2	0	1	0	1	0	1
18:00 ~ 19:00	48	7	14	2	0	5	0	1	0	2	0	2	0	2
19:00 ~ 20:00	60	2	6	3	0	1	3	1	0	1	3	2	0	4
20:00 ~ 21:00	37	5	10	2	1	1	0	1	0	0	0	0	0	0
21:00 ~ 22:00	35	4	10	1	0	5	1	1	0	0	0	1	0	0
22:00 ~ 23:00	19	1	7	2	0	1	1	0	0	0	0	5	0	0
23:00 ~ 24:00	16	1	8	1	0	0	0	0	0	0	0	0	0	0
24:00 ~ 01:00	9	1	3	1	0	0	0	0	0	0	0	0	0	0
01:00 ~ 02:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0
02:00 ~ 03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 ~ 04:00	3	0	2	0	0	0	0	0	0	0	0	0	0	0
04:00 ~ 05:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 ~ 06:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0
06:00 ~ 07:00	3	1	1	0	0	0	0	0	0	0	0	0	5	1
Total	758	69	229	59	1	29	7	12	1	8	1	8	39	30

Sep 19,2017 (observation point 3)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others			
	Sedan/ Wagon	Pick-up/ 4WD	Van./ Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	97	1	22	5	1	3	1	12	0	0	0	0	0	1
8:00 ~ 9:00	229	12	26	4	0	2	0	6	0	0	0	0	0	0
9:00 ~ 10:00	276	13	9	36	0	2	2	13	0	0	0	0	0	1
10:00 ~ 11:00	271	13	19	31	1	1	1	6	0	0	0	0	0	0
11:00 ~ 12:00	247	5	16	24	0	1	3	6	0	0	0	0	0	2
12:00 ~ 13:00	231	6	22	10	0	9	5	10	0	0	0	0	0	0
13:00 ~ 14:00	233	4	20	27	0	3	6	7	0	0	0	0	0	0
14:00 ~ 15:00	197	6	12	31	0	7	2	2	0	0	0	0	0	0
15:00 ~ 16:00	226	9	22	24	0	5	3	8	0	0	0	0	0	0
16:00 ~ 17:00	225	4	16	27	0	1	2	5	0	0	0	0	0	0
17:00 ~ 18:00	242	1	19	19	0	5	4	7	0	1	0	0	0	0
18:00 ~ 19:00	192	6	18	21	0	3	6	6	0	0	0	0	0	1
19:00 ~ 20:00	182	9	6	24	0	5	3	10	0	0	0	0	0	2
20:00 ~ 21:00	176	16	15	9	1	5	1	7	0	0	0	0	0	0
21:00 ~ 22:00	138	8	5	7	0	2	2	8	0	0	0	0	0	0
22:00 ~ 23:00	119	3	5	11	0	1	0	7	0	1	0	0	0	0
23:00 ~ 24:00	93	2	0	14	1	2	1	2	0	0	0	0	0	0
24:00 ~ 01:00	67	5	1	11	0	0	0	8	0	0	0	0	0	0
01:00 ~ 02:00	43	5	3	9	0	3	0	8	0	0	0	0	0	0
02:00 ~ 03:00	26	2	10	4	0	5	1	9	0	0	0	0	0	0
03:00 ~ 04:00	34	1	12	9	0	2	3	2	0	0	0	0	0	0
04:00 ~ 05:00	18	1	0	3	0	0	0	7	0	0	0	0	0	0
05:00 ~ 06:00	21	3	3	3	0	1	0	5	0	0	0	0	0	0
06:00 ~ 07:00	56	0	6	6	0	2	0	3	0	1	0	0	0	0
Total	3639	135	287	369	4	70	46	164	0	3	0	0	7	0

Sep 19,2017 (observation point 4)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others			
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	42	0	12	21	0	3	2	5	0	0	0	0	0	1
8:00 ~ 9:00	87	4	36	17	1	2	6	0	0	0	0	0	0	0
9:00 ~ 10:00	132	0	62	14	0	4	7	15	0	2	0	0	0	0
10:00 ~ 11:00	100	0	64	24	0	5	2	10	0	1	0	0	0	0
11:00 ~ 12:00	116	2	64	32	0	5	4	6	0	0	0	0	0	1
12:00 ~ 13:00	110	0	53	20	0	6	3	9	0	0	0	0	0	0
13:00 ~ 14:00	96	0	61	20	1	6	2	13	0	0	0	0	0	3
14:00 ~ 15:00	98	0	44	21	0	2	0	9	0	0	0	0	0	0
15:00 ~ 16:00	110	1	52	27	0	7	2	7	0	0	0	0	0	0
16:00 ~ 17:00	133	0	61	37	0	4	11	7	0	0	0	0	0	0
17:00 ~ 18:00	103	0	54	23	0	3	7	8	0	0	0	0	0	0
18:00 ~ 19:00	119	0	46	33	0	3	7	4	0	0	0	0	0	0
19:00 ~ 20:00	105	2	58	26	0	4	6	13	0	2	0	0	0	0
20:00 ~ 21:00	110	1	56	7	1	3	3	5	0	1	0	0	0	0
21:00 ~ 22:00	82	0	51	5	0	1	2	11	0	0	0	0	0	0
22:00 ~ 23:00	56	0	33	5	1	1	2	6	0	0	0	0	0	0
23:00 ~ 24:00	43	0	29	1	1	5	0	5	0	0	0	0	0	0
24:00 ~ 01:00	34	0	29	1	0	2	1	4	0	0	0	0	0	1
01:00 ~ 02:00	27	0	11	3	0	0	2	8	0	0	0	0	0	0
02:00 ~ 03:00	34	0	13	0	0	1	0	7	0	0	0	0	0	0
03:00 ~ 04:00	10	0	8	0	0	0	1	2	0	0	0	0	0	0
04:00 ~ 05:00	9	0	9	0	1	6	2	6	0	0	0	0	0	0
05:00 ~ 06:00	18	0	4	2	1	4	0	5	0	0	0	0	0	0
06:00 ~ 07:00	26	0	19	7	0	2	2	4	0	0	0	0	0	2
Total	1800	10	931	346	7	79	74	169	0	6	2	6	2	8

Sep 19,2017 (observation point 5)

Major category	I: Light vehicles		II: Medium vehicles		III: Heavy vehicles			IV: 2-Wheel vehicles			V: Others			
	Sedan/ Wagon	Pick-up / 4WD	Van / Mini bus truck	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Motorbike	Bike trailer	Bicycle	Tricycle	Animal	Walker
7:00 ~ 8:00	68	0	8	3	1	1	2	1	0	0	0	0	0	2
8:00 ~ 9:00	153	1	10	4	0	0	4	6	0	0	0	0	0	0
9:00 ~ 10:00	214	8	12	11	0	3	4	4	0	0	0	0	2	1
10:00 ~ 11:00	202	12	11	12	0	4	4	2	0	0	0	0	0	0
11:00 ~ 12:00	157	8	8	2	0	4	9	3	0	0	0	0	0	0
12:00 ~ 13:00	182	6	9	3	0	5	9	1	0	0	0	0	0	0
13:00 ~ 14:00	167	6	18	2	0	1	10	4	0	0	0	0	0	0
14:00 ~ 15:00	106	0	17	0	0	1	13	3	0	4	0	0	0	0
15:00 ~ 16:00	135	3	10	6	0	2	7	2	0	0	0	0	0	0
16:00 ~ 17:00	121	5	24	0	0	1	8	7	0	0	0	0	0	0
17:00 ~ 18:00	143	6	15	2	0	5	7	0	1	0	0	0	0	5
18:00 ~ 19:00	107	2	4	2	0	4	8	0	0	0	0	0	0	0
19:00 ~ 20:00	87	5	11	3	0	2	2	3	0	0	0	0	0	0
20:00 ~ 21:00	105	2	10	0	0	6	3	1	0	0	0	0	0	0
21:00 ~ 22:00	68	2	6	1	0	0	2	0	0	0	0	0	0	0
22:00 ~ 23:00	50	1	4	1	1	1	2	4	1	0	0	0	0	0
23:00 ~ 24:00	47	1	2	2	1	1	2	2	0	0	0	0	0	0
24:00 ~ 01:00	20	0	1	0	1	0	0	4	0	0	0	0	0	0
01:00 ~ 02:00	11	0	0	0	0	0	2	0	0	0	0	0	0	0
02:00 ~ 03:00	15	0	1	0	0	0	0	2	0	0	0	0	0	0
03:00 ~ 04:00	5	0	0	0	0	1	0	1	0	0	0	0	0	0
04:00 ~ 05:00	6	0	1	0	1	0	0	0	0	0	0	0	0	0
05:00 ~ 06:00	9	0	0	0	0	1	0	0	0	0	0	0	0	0
06:00 ~ 07:00	14	3	5	3	2	0	3	2	0	0	0	0	0	0
Total	2192	71	187	57	8	43	103	49	1	4	2	8	2	8

Sep 19, 2017 (observation point 6)

Major category	I. Light vehicles		II. Medium vehicles		III. Heavy vehicles			IV. 2-Wheel vehicles			V. Others	
	Sedan / Wagon	Pick-up / 4WD	Mini bus / Van /	Mini truck	Standard & Large bus truck	2-axis truck	3-axis truck	Articulated truck	Mopedbike / Bike trailer	Bicycle / Tricycle	Animal	Walker
7:00 ~ 8:00	60	23	11	16	0	2	2	3	0	0	0	0
8:00 ~ 9:00	109	27	27	23	1	3	3	9	0	0	0	0
9:00 ~ 9:00	90	16	23	27	0	2	4	8	0	0	0	0
10:00 ~ 11:00	62	7	25	16	0	6	0	5	0	0	0	0
11:00 ~ 12:00	63	6	19	18	1	6	5	8	0	0	0	0
12:00 ~ 13:00	61	3	12	12	0	5	3	9	0	0	0	0
13:00 ~ 14:00	67	9	13	16	0	2	6	12	0	0	0	0
14:00 ~ 15:00	53	2	25	9	0	5	2	5	0	0	0	0
15:00 ~ 16:00	80	3	21	13	1	5	5	9	0	0	0	0
16:00 ~ 17:00	54	0	26	14	0	6	5	4	0	0	0	0
17:00 ~ 18:00	63	3	34	19	0	5	7	12	0	0	0	0
18:00 ~ 19:00	87	3	24	17	0	2	2	5	0	0	0	0
19:00 ~ 20:00	60	5	18	14	0	3	2	7	0	0	0	0
20:00 ~ 21:00	40	2	9	8	0	2	3	8	0	0	0	0
21:00 ~ 22:00	48	3	9	9	0	2	1	5	0	0	0	0
22:00 ~ 23:00	57	2	8	8	1	1	1	7	0	0	0	0
23:00 ~ 24:00	49	0	8	2	0	1	1	20	0	0	0	0
24:00 ~ 01:00	47	0	2	11	0	0	0	13	0	0	0	0
01:00 ~ 02:00	46	0	5	9	1	1	0	6	0	0	0	0
02:00 ~ 03:00	23	0	1	1	0	0	0	3	0	0	0	0
03:00 ~ 04:00	36	0	13	8	0	2	0	2	0	0	0	0
04:00 ~ 05:00	42	1	15	5	0	0	1	9	0	0	0	0
05:00 ~ 06:00	37	1	3	6	0	1	7	5	0	0	0	0
06:00 ~ 07:00	30	0	6	10	0	2	1	4	0	0	0	0
Total	1364	116	357	291	5	64	61	178	0	0	0	0

(3) Topographic survey result

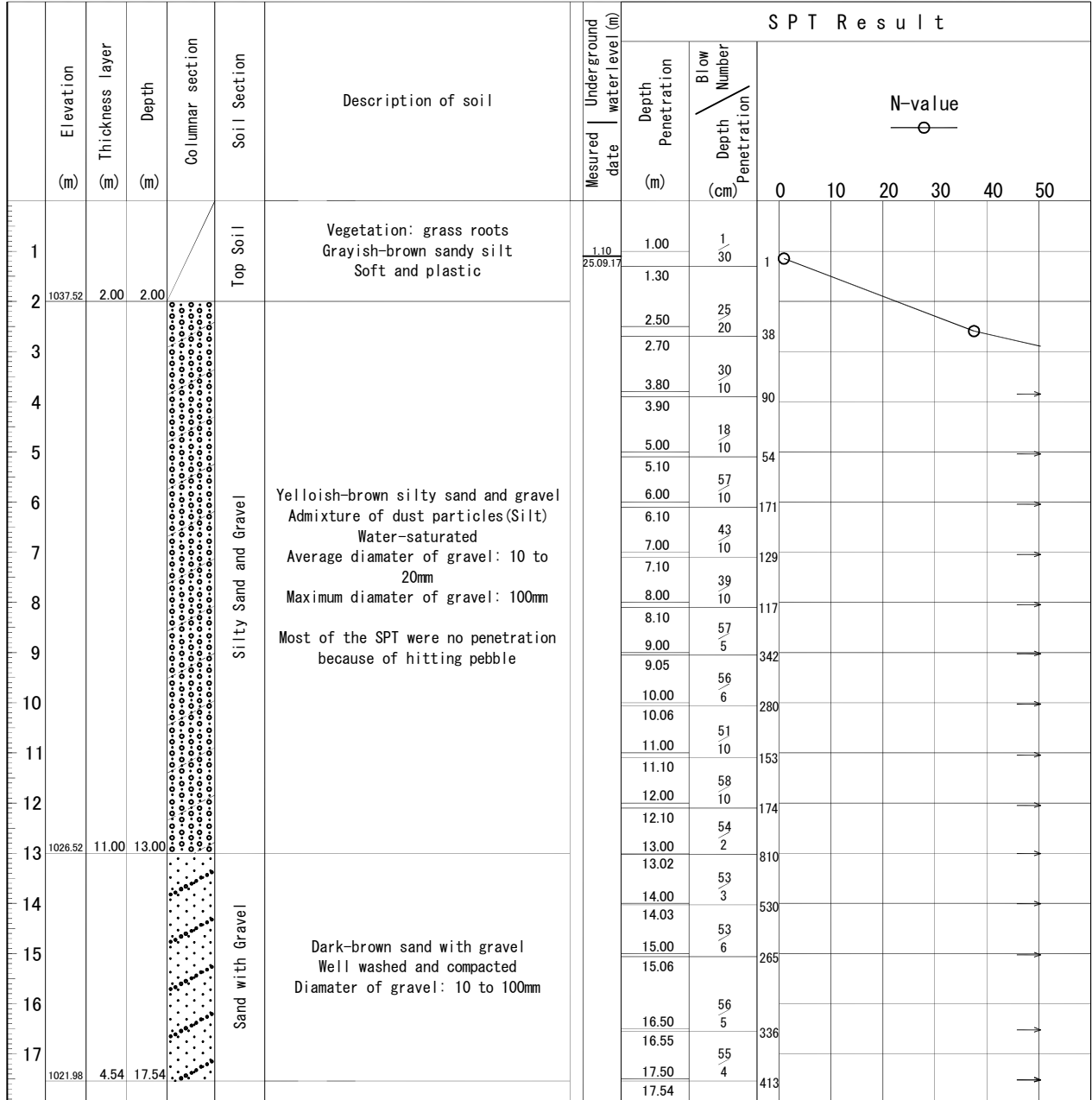
(4) Geological survey result

Summary for borcholes

Bore holes

No	Description	Depth, m	Liquid limit %	Plastic limit %	Plastic index %	Specific Gravity		Natural Moisture content, m(%)	Sieve Analysis (retained %)																	
						T 84	T 85		75.0	63.0	37.5	31.5	25.0	16.0	8.0	4.0	2.0	1.0	0.5	0.250	0.125	0.075	Bottom			
1	B-1	0.8							9.3	7.1	7.3	11.2	6.3	2.4	17.9	10.2	6.7	1.8	1.1	3.9	6.6	5.6	2.5			
		2	24.69	19.08	5.61				9.3	7.3	8.4	9.8	4.0	2.9	18.6	10.9	7.2	4.4	2.3	2.3	4.3	7.5	0.9			
		4						2.755		14.5	7.2	4.8	17.2	0.5	10.2	12.5	7.3	5.9	4.2	3.0	3.2	1.3	3.8	4.2		
		6							11.9	9.2	12.3	1.5	1.1	2.3	14.6	9.1	5.8	3.8	3.0	4.7	9.5	4.7	6.2			
		8							10.6	7.6	10.6	1.7	1.0	1.7	9.0	1.7	5.5	3.9	6.6	4.7	1.7	18.8	12.9	3.1		
		10						2.800		7.0	5.3	4.6	2.9	2.6	3.8	12.7	5.2	3.7	6.0	4.9	2.3	11.3	14.4	13.3		
		12							7.8	6.0	4.7	2.1	2.2	2.7	6.4	5.0	4.8	5.9	4.1	1.2	4.7	28.2	14.1			
		14							7.4	6.3	4.2	3.0	2.0	3.0	2.0	3.0	7.6	5.7	5.4	2.9	1.0	14.7	28.1	3.2		
		16						2.726		8.9	7.1	4.8	4.3	3.3	4.0	5.3	2.9	2.9	7.2	5.9	2.0	19.4	2.5	19.4		
		18								8.3	6.6	6.4	3.4	9.0	7.5	8.9	7.4	7.1	9.1	2.6	0.5	0.2	12.1	11.0		
		20																								
		2		0.5																						
				2	24.09	19.41	4.68					9.6	6.3	4.8	3.3	9.2	8.3	9.3	7.1	4.6	1.9	2.2	6.5	0.5	11.6	14.8
				4	21.81	18.52	3.28			2.813		10.1	5.8	6.8	4.6	1.0	2.4	15.1	9.6	6.3	2.0	2.2	6.0	2.8	11.8	13.5
				6	18.94	15.31	3.63					9.1	6.9	5.8	5.1	9.4	7.6	15.5	8.4	4.0	2.3	2.3	4.2	9.3	3.1	7.0
				8	18.03	15.81	2.22					10.1	7.7	6.0	5.0	5.1	4.5	15.1	10.7	7.3	2.0	1.7	2.6	8.0	1.1	12.4
				10	17.11	15.07	2.04					8.7	6.7	6.0	3.9	6.3	5.9	15.8	11.2	7.6	2.4	2.4	2.8	9.2	7.8	3.5
				12								9.4	6.9	6.8	5.3	3.0	2.0	11.9	9.5	8.9	3.5	2.5	3.1	15.6	1.4	10.4
				14								8.7	6.6	6.0	4.0	5.3	3.8	13.7	11.6	9.0	4.3	3.2	2.9	11.4	1.0	8.0
				16	18.36	16.19	2.17			2.757		9.0	6.9	6.4	5.2	3.0	2.5	15.6	9.0	10.2	5.6	4.0	3.4	3.4	8.6	7.1
18								2.746		10.7	6.7	5.1	5.9	9.6	10.3	14.3	7.8	5.8	3.7	3.8	3.3	0.9	6.4	5.7		
20										9.5	7.5	6.3	5.3	6.3	3.4	12.0	9.6	7.3	4.2	3.9	3.7	2.7	5.5	12.9		
3				0.2																						
				2	18.12	12.77	5.35					10.5	7.2	8.8	6.3	3.9	2.6	21.3	14.5	8.2	4.8	2.8	2.6	4.1	2.3	0.1
				4	18.52	15.5	3.02			2.786		11.3	7.3	6.5	5.4	4.9	4.4	18.0	8.2	6.3	3.0	2.6	2.8	9.3	7.7	2.3
				6								11.4	7.7	6.4	7.1	4.0	7.4	17.4	11.1	7.5	6.0	3.8	2.5	5.1	0.3	2.3
				8								10.6	9.6	6.3	5.1	4.2	1.9	14.1	9.8	6.0	3.6	3.1	2.9	14.2	2.5	6.2
				10								10.3	7.4	6.4	5.5	4.4	3.4	17.7	12.8	8.4	4.7	2.8	2.1	0.6	5.4	8.0
				12						2.768		11.0	7.5	6.9	5.7	5.2	5.1	5.7	7.4	6.4	5.6	2.5	2.5	4.2	10.5	13.6
				14								9.4	8.4	6.3	5.6	3.8	3.1	13.9	9.3	7.3	3.4	3.9	3.6	7.5	0.9	13.1
				16								10.0	7.4	6.7	5.7	5.0	2.2	14.3	7.4	6.7	4.4	3.4	3.1	6.6	14.5	2.7
		18								12.6	7.9	7.3	5.9	4.0	5.2	11.3	9.4	8.0	3.5	3.6	3.2	9.4	5.1	3.6		
		20						2.772		10.8	8.1	6.9	6.1	4.3	3.4	10.1	6.4	8.2	5.3	3.2	3.2	9.5	10.0	4.5		
		4		2							13.1	11.4	10.0	9.5	4.7	5.9	7.7	7.7	8.4	11.4	3.2	1.7	0.1	3.0	2.1	
				4						2.812		10.2	7.2	6.3	7.4	5.1	5.8	11.4	8.2	8.0	3.5	3.5	2.1	12.3	2.1	6.8
				6								11.5	9.2	8.0	6.3	11.8	7.9	9.4	8.2	6.5	6.2	6.3	2.3	3.5	0.6	2.2
				8								13.3	9.6	11.0	5.8	4.2	3.7	9.4	5.9	7.0	4.4	4.2	3.0	1.3	11.1	6.1
				10								11.4	7.4	6.0	5.3	4.1	3.5	15.1	6.1	5.9	3.1	5.6	3.1	6.3	4.5	12.7
				12						2.785		13.8	9.3	6.8	6.1	7.8	2.4	10.5	9.8	7.4	5.1	4.3	2.3	9.6	0.2	4.8
				14								11.7	7.7	6.5	5.4	5.3	6.9	13.6	7.1	7.6	4.4	4.0	2.8	5.4	1.3	9.3
				16								12.6	9.2	7.0	5.8	4.6	7.4	6.9	2.3	4.8	5.0	4.8	2.6	5.1	6.5	15.4
				18								12.9	11.3	8.2	5.9	7.5	7.4	6.0	5.6	5.7	3.3	2.2	3.1	12.1	3.1	5.6
20										13.3	9.3	7.1	5.5	8.0	4.7	13.6	6.1	6.5	4.7	3.4	2.1	4.4	1.0	10.4		
5				0.3																						
				2																						
				4	23.81	16.9	6.91					12.7	7.7	6.9	4.6	4.8	4.9	15.0	11.4	7.8	4.9	3.2	2.9	7.1	2.1	4.0
				6	22.89	16.4	6.49			2.771		12.8	8.3	7.6	6.9	4.2	8.0	15.9	10.2	7.7	3.4	2.5	3.0	4.5	4.0	0.8
				8	23.7	16.09	7.61					14.5	10.1	8.0	6.8	4.2	9.9	4.8	5.3	6.8	1.2	1.9	1.6	16.5	0.8	7.8
				10	18.9	15.5	3.4			2.689		11.0	8.5	6.8	6.2	4.4	6.2	13.3	9.8	5.3	3.4	3.1	3.1	0.6	11.2	7.2
				12								11.4	7.0	4.6	3.9	7.1	9.5	15.1	9.5	6.0	3.3	3.7	2.8	1.9	8.8	5.3
				14								13.9	8.3	7.9	8.2	6.0	4.2	10.2	6.3	5.3	2.8	3.9	2.6	8.2	3.1	9.2
				16								12.1	8.7	6.0	5.7	5.4	5.4	11.6	6.0	5.4	5.7	5.5	3.5	12.3	0.4	6.1
				18						2.734		11.6	8.8	7.2	5.1	7.5	9.3	11.2	5.7	4.7	3.4	4.1	2.5	2.9	11.8	4.4
		20								13.9	10.2	8.1	6.2	4.1	3.5	5.2	8.1	6.6	3.3	3.7	2.3	10.0	6.5	8.2		

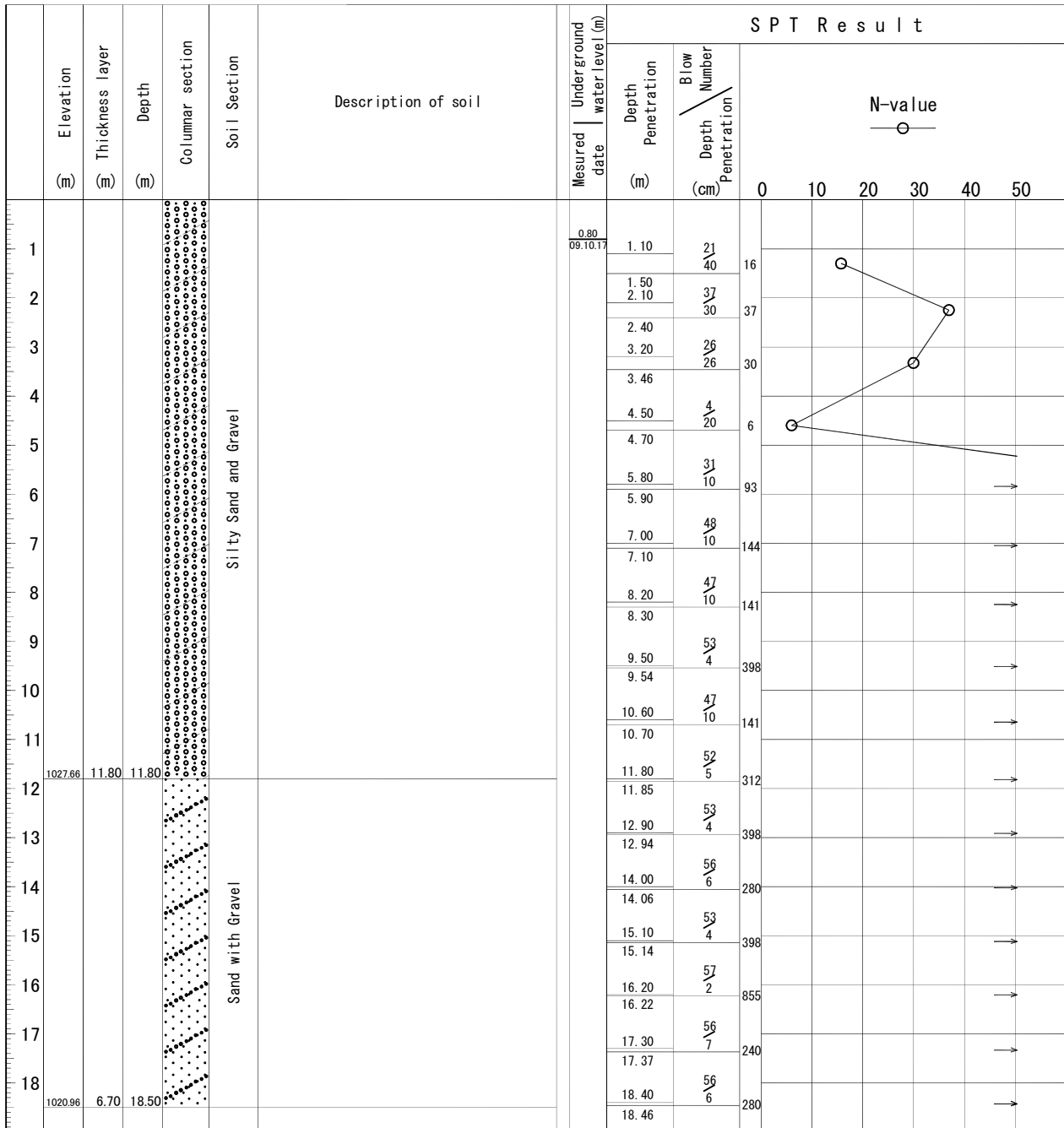
Borehole No. 1



Borehole No. 2

Elevation (m)	Thickness layer (m)	Depth (m)	Columnar section	Soil Section	Description of soil	Measured date	Underground water level (m)	SPT Result					
								Depth Penetration (m)	Blow Number / Depth Penetration (cm)	N-value			
1				Top Soil		0.80		1.00	8 / 30	8			
2	1037.18	2.00	2.00	Silty Sand and Gravel				1.30	13 / 30	13			
3								2.40					
4								3.50				36 / 20	54
5								3.70					
6								4.80				27 / 30	27
7								5.10					
8								6.40				52 / 4	390
9								6.44					
10								7.50				45 / 10	135
11	1028.28	8.90	10.90					Sand with Gravel				8.70	54 / 6
12				8.76								53 / 6	265
13				9.80									
14				9.86								56 / 5	336
15				10.90									
16				10.95								55 / 5	330
17				12.00									
18	1021.08	7.20	18.10	12.05								55 / 4	413
				13.20									
				13.24				53 / 6	265				
				14.50				55 / 3	550				
				15.60									
				15.63				52 / 2	780				
				16.70									
				16.72				51 / 4	383				
				18.00									
				18.04									

Borehole No. 4



Dortranservice Ltd

Borehole №5

level: 1043.01

Boring method: core type,
diameter 112mm with using
pneumatic hammer ПП-110
Scale: 1:100

Point of standard penetration: Д-5
date penetration: 12.10.17
Type of equipment: УРБ 2А-2 (навесный)

Layer number	Geological index		Depth stratification, m	Lithological section	Description of material	Underground water level, M		Group number по СНиТ IV-5-82	Homep ИТЗ	Blows number Depth, m Penetration, m	Blows number distance, cm	n-Blows number qc, МПа (кгс/см²)
	OT	AO				Apparent date	Measured date					
1	0.0	0.2	0.2	0.0-0.5m - Soil vegetation layer; sandy loam dark brown, hard with pebble up to 15%. Pebble soil layer on the depth 0.5m is wet, from depth 0.5m layer is water-saturated	10.10.17	11.10.17			0.2	3		
				0.5-2.0m - Pebble soil layer with sand up to 24.2%, with boulder size 200-400 mm up to 20%.					0.5	6		
				2.0-4.0m - Pebble soil layer with sandy loam up to 16.8%, with boulder size 200-400 mm up to 20%. LL=23.81%, PL=16.9%, P=6.91%					1.3	12		
				4.0-6.0m - Pebble soil layer with sandy loam up to 18.2%, with boulder size 200-400 mm up to 20%. LL=22.89%, PL=16.4%, P=6.48%					1.4	16		
				6.0-8.0m - Pebble soil layer with sandy loam up to 29.8%, with boulder size 200-400 mm up to 20%. LL=23.7%, PL=16.09%, P=7.61%					1.5	24		
				in the range of depth 7.4-7.7m layer with a dusty-clay aggregate (sandy loam) up to 20%. Fragmentary material is strong, is well rounded, is represented by sedimentary and igneous rocks					1.6	33		
				8.0-10.0m - Pebble soil layer with sandy loam up to 28.6%, with boulder size 200-400 mm up to 20%. LL=18.9%, PL=15.5%, P=5.4%, SG=2.698 gm/3.					1.7	40		
				10.0-12.0m - Pebble soil layer with sand up to 25.9%, with boulder size 200-400 mm up to 20%. LL=18.9%, PL=15.5%, P=5.4%, SG=2.698 gm/3.					1.8	54		
				12.0-14.0m - Pebble soil layer with sand up to 29.9%, with boulder size 200-400 mm up to 20%.					1.9	71		
				14.0-16.0m - Pebble soil layer with sand up to 39.5%, with boulder size 200-400 mm up to 20%.					2.0	84		
				16.0-18.0m - Pebble soil layer with sand up to 29.1%, with boulder size 200-400 mm up to 20%. SG=2.734 gm/3.					2.1	103		
				18.0-20.0m - Pebble soil layer with sand up to 34.0%, with boulder size 200-400 mm up to 20%.					2.2	133		
									3.1	153		
									3.7	26		
									3.8	34		
									4.7	40		
									5.0	54		
									5.9	44		
									6.1	52		
									7.0	48		
									7.2	55		
									8.2	44		
									8.3	52		
									9.4	41		
									9.5	54		
									10.6	55		
									11.7	53		
									12.8	54		
									13.8	56		
									14.0	52		
									15.0	57		
									16.1	53		
									16.2	55		
									17.3	52		
									18.3	53		
1	7.7	20.0	12.3					IV				

Summary table for pits

№	Description	Depth, m	Liquid limit %		Plastic limit %		Plastic index %	Specific gravity (fine aggregate) T-84	Specific gravity (coarse aggregate) T-85	MDD g/cm ³	OMC %	CBR %	Natural Moisture content (%)	Sieve Analysis (retained %)														
			W _L	W _p	NP	I _p								75.0	63.0	37.5	31.5	25.0	16.0	8.0	4.0	2.0	1.0	0.5	0.250	0.125	0.075	Bottom
1	P 1 upper layer	0.36-0.56					2.746	2.780	2.222	4.8	52.0	3.4		75.0	63.0	37.5	31.5	25.0	16.0	8.0	4.0	2.0	1.0	0.5	0.250	0.125	0.075	Bottom
	P 1 lower layer		36.18	25.55	10.63	2.746		2.077	8.9	34.0	6.3																	
2	Pit 2	0.2-0.4					2.462	2.844	2.295	7.1	49.0	5.5		10.3	12.5	15.2	13.1	9.8	12.4	9.4	4.8	3.8	2.0	2.1	1.6	1.2	0.9	1.0
3	Pit 3	0.1-0.3					2.778	2.884	2.228	6.7	43.0	4.6		9.1	8.7	7.4	5.5	6.5	7.2	10.9	9.2	7.3	4.6	6.5	5.1	3.6	2.5	5.9
			0.5-0.8	31.23	24.53	6.7	2.804	2.680	2.245	5.5	33.0	8.1			6.7	5.9	2.4	2.2	1.6	5.2	13.6	14.3	10.7	7.7	9.2	5.6	4.0	2.6
4	Pit 4	0.36-0.56					2.738	2.800	2.280	6.1	56.0	4.9		5.4	9.6	10.4	4.6	3.2	6.8	11.2	11.3	10.7	6.4	7.3	4.3	2.5	0.6	5.8
			0.6-0.8	32.44	21.33	11.1	2.894		2.000	11.1	27.0	10.9										9.2	8.5	6.9	4.9	2.7	2.5	1.3
5	Pit 5	0.20-0.50					2.758	2.777	2.270	8.0	62.0	6.6		4.7	8.3	10.4	4.4	5.0	6.9	9.4	8.0	7.8	6.4	8.5	7.5	5.6	2.4	4.7

Summary table for borrowpits

Plus

No	Name of Borrowpit	Depth, m	Liquid limit % W _L	Plastic limit % W _p	Plastic index % I _p	Specific gravity (fine aggregate) T-84	Specific gravity (coarse aggregate) T-85	MDD g/cm ³	OMC %	CBR %	Natural Moisture content (%) %	Sieve Analysis (retained %)															
												75.0	63.0	37.5	31.5	25.0	16.0	8.0	4.0	2.0	1.0	0.5	0.250	0.125	0.075	Bottom	
1	AKDobo	2.0-2.2		NP		2.665	2.761	2.218	6.7	42.0	5.2	9.3	9.7	25.2	5.9	5.0	18.9	12.2	4.5	2.4	1.3	1.3	1.5	1.1	0.8	1.1	
2	Kumushak	0.5-0.7		NP		2.658	2.832	2.291	7.0	48.0	9.3	11.4	8.7	16.9	8.0	6.1	10.5	7.7	5.5	7.7	5.9	3.0	2.6	3.3	1.7	1.7	0.9

Sieve analysis of material from riverbed

		6.0	7.7	15.0	15.6	26.1	10.5	4.7	3.7	3.1	1.4	0.8	0.6	0.5	0.3	4.0
Upstream sample for sieve analysis																
Downstream sample for sieve analysis		2.3	6.1	18.0	19.4	24.2	8.9	3.7	3.6	3.1	1.5	1.3	1	0.7	0.8	5.4

(5) Stakeholder meeting record

**Protocol of public hearings and consultations in the villages
of Kyzyl-Say and Ak-Dobo (Ak-Dobo ayil okmotu) of Bakay-Ata district of Talas oblast**

Preliminary preparation for public hearings

1. September 22, 2017, during the meeting with the head of Ak-Dobo ayil okmotu, the chief engineer of the Regional Department No. 3 in Talas oblast (Road Management Department under the Ministry of Transport and Roads of the KR), the head of the DEU №47, the date and time of meetings with interested parties persons was decided.
2. September 27, 2017 Chief of the Regional Department № 3 for Talas region (Road Management Department under the Ministry of Transport and Roads of the Kyrgyz Republic) Osmonaliev R.K. sent an official letter addressed to the head of ayil okmotu Orozbaev Zhamalbek to invite all interested persons to public hearings.

Participators:

Farmers, teachers, housewives, pensioners, deputies of the aiyl kenesh, First deputy head of the state administration of Bakai-Ata district, Head and staff of Ak-Dobo ayil okmotu, environmental officer of Bakai Ata district, chief engineer of Bakay-Ata electric supply department, Chief Engineer of the Regional Department No. 3 in Talas oblast (Road Management Department under the Ministry of Transport and Roads of the Kyrgyz Republic), Ms. Masako Suzuki, Mr. Takahiko Sato, Osmonalieva Raya, Krivoruchko Sergey.

Speakers:

1. The head of Ak - Dobo ayil okmotu - Orozbaev Jamalbek made a welcoming speech.
2. Chief engineer of the Regional Department No. 3 in Talas oblast (Road Management Department under the Ministry of Transport and Roads of the KR) - Sadiraliev Nurkan and the head of DEU # 47 - Sultankulov Talai told about the JICA project.
3. Ecologist - Krivoruchko Sergei and sociologist - Osmonalieva Raya told about the beginning of their research work on the project.
4. Discussion and questions of villagers, their opinions and wishes

Lists of participants in the public hearings are attached below.

The purpose of public hearings

Public hearings and consultations were sent to inform residents of 2 villages, all interested parties about the project of JICA "Reconstruction of the bridge across the Urmalar River along the Talas-Taraz highway of the Kyrgyz Republic". Learn the opinions of residents about the benefits of the bridge rehabilitation. In the discussion, the opinions of all those interested were welcomed.

Number of public hearings and consultations	Date	Place and number of participants	Content	Organizers of the hearing, speakers	Language
The first public hearing	2017/10/03 Time: 11:30 – 13:00	Kyzyl-Say village Number of participators – 36 persons	- On the emergency condition of the bridge - Information about the project. About JICA Grant Project and the reconstruction of the bridge - Speech by the	1. The head of Ak-Dobo ayil okmotu - Orozbaev Jamalbek 2. Chief engineer of the Regional Department No. 3 in the Talas oblast (Road Management Department under the Ministry of Transport and Roads of the Kyrgyz Republic)	<ul style="list-style-type: none"> • Kyrgyz and • Russian

			ecologist - Speech by the sociologist	- Sadiraliev Nurkan 3. The head of the DEU №47 - Sultankulov Tailai 4. Ecologist - Sergey Krivoruchko 5. Sociologist - Osmonalieva Raya
The second public hearing	2017/10/03 Time: 17:00 – 18:00	Ak-Dobo village Number of participators – 53 persons	- On the emergency condition of the bridge - Information about the project. About JICA Grant Project and the reconstruction of the bridge - Speech by the ecologist - Speech by the sociologist	1. The head of Ak-Dobo ayil okmotu - Orozbaev Jamalbek 2. Chief engineer of the Regional Department No. 3 in the Talas oblast (Road Management Department under the Ministry of Transport and Roads of the Kyrgyz Republic) - Sadiraliev Nurkan 3. The head of the DEU №47 - Sultankulov Tailai 4. Ecologist - Sergey Krivoruchko 5. Sociologist - Osmonalieva Raya

The main questions asked by participants of public hearings and consultations

The main questions	<p>Question 1. When will the construction of the bridge begin? Answer 1. Design and survey work for the construction of the bridge began. Now engineering geological work is under way. Sanitary and environmental standards will also be studied. Environmental recommendations will be made. Construction will begin in 2019. A modern bridge and heavy trucks will be built, and all kinds of cars can pass unhindered.</p>
	<p>Question 2. This bridge was built in the 1960s and today its emergency condition does not meet modern requirements. Heavy vehicles pass with difficulty, both towards Kazakhstan and towards Kyrgyzstan. What kind of bridge do the Japanese plan to build? Is it grant or loan money? Answer 2: The project of reconstruction of the bridge over the Urmalar River along the Talas-Taraz highway is carried out by the Japan International Cooperation Agency (JICA). The bridge will be built in the framework of the JICA grant. The project is a free aid to Japan. A bridge will be built that meets modern requirements with electric lighting and with sidewalks on both sides of the bridge. There will be a modern, safe three span bridge with a length of 90 meters 1 km along with the road. The width of the road is 14 meters.</p>
	<p>Question 3. What will happen to the pond? Answer 3. Based on the results of drilling hydrogeologists, it will be determined whether water is suitable for use. There are no results yet.</p>
	<p>Question 4. Who will evaluate the upcoming cutting down of trees? Their cost. Will this amount go to the budget?</p>

	Answer 4. Now it's being studied, whose land is this. We need to determine the boundaries with State Registration Service. The research has just begun
	Question 5. We are pleased that a new modern bridge will be built. But there was a case in the city of Osh, when the new bridge collapsed in a year. What is the lifespan of the new bridge? Answer 5. 40-50 years.
	Question 6. Will the presence of rare plants, rare trees in the vicinity of the bridge construction be studied? Answer 6. Rare trees will be transplanted. Fish in the pond should not suffer. A survey of flora and fauna will be conducted. Then, if there are Plants of the Red Book and rare trees, appropriate measures will be taken to protect them. An environmental assessment will be conducted.
	Question 7. When will the reconstruction of the bridge begin, the road closes? Answer 7. The new bridge will be built next to the old one, during the construction along the old bridge cars will also pass through.
	Question 8. Will the irrigation canal be repaired? Answer 8. Irrigation canal will not be repaired, as it is not included in the project.
	Question 9. After the construction of a new bridge, after his assurance, can you save the old bridge? Answer 9. The Ministry of Transport will decide to remove or leave the old bridge.
	Question 10. On the steep turn bad visibility, because of this there are a lot of accidents. How will this section of the road be built? Answer 10. The sharp turn will be softened and will become safe. It is planned to expand the road on a steep turn, where accidents often occur. Lighting, speed limit signs will be installed.
	Question 11. Will they involve local qualified specialists and workforce during the construction of the bridge? Answer 11. As far as possible.
	Question 12. Will the given road repair interfere with the future construction of the bridge? Answer 12. No, it does not hurt, because the bridge construction project has been discussed in advance with the relevant authorities. The company that is currently repairing our roads is aware that the bridge will be built on this project, so there will be no problems with these.

Words of gratitude and wishes to the project designers

The participants of the public hearings expressed their gratitude for acquainting them with the project. They asked to convey their gratitude to the Japanese people and JICA for their initiative to build a new bridge for them. Grateful to JICA for brotherly help. This will be a safe, modern bridge and will serve the inhabitants of the Talas region for many years.

The participants of the meeting expressed their readiness for assistance during the construction of the bridge, if necessary. They noted that the new JICA bridge for residents of the Talas region is the step of the Japanese people in the region. The bridge will ensure a safe, unhindered communication of the residents of the Talas oblast to the city of Taraz, Dzhambul region (Kazakhstan) and vice versa, also for Kazakh businessmen and residents who come to buy agricultural products and livestock to Talas oblast. All participants of the meeting noted the extremely poor, emergency condition of the bridge.

People in advance expressed their gratitude to all people who are involved and will be involved in the reconstruction of the bridge. It is hoped that the designers of the bridge will observe all technical

standards and requirements, and the bridge will serve them for many years.

They also asked to expand the road on a steep turn, where accidents often occur, set lighting, set signs, speed limit indicators.

Participants suggested that when building a bridge, if possible, involve local qualified specialists and workers.

As shown by public hearings, the bridge on the Urmalar River is of great importance for the residents of the region and there are high expectations with its reconstruction.

The Protocol prepared: Raya Osmonalieva, Social Assessment Specialist

List of participants of public hearings and consultation meeting, Kyzyl-Sai village

Список участников общественных слушаний и консультативной встречи в Ак - Добо авыл иезмугу Бакай Атинского района, 3 октября 2017.
Село Кызыл - Сай

No	ФИО	Название организации	Контактные данные
1	Алиев Р. А.	Колхоз	
2	Садриев М. Н.	Колхоз	
3	Алиев Р. А.	Колхоз	
4	Алиев Р. А.	Колхоз	
5	Алиев Р. А.	Колхоз	
6	Алиев Р. А.	Колхоз	
7	Алиев Р. А.	Колхоз	
8	Алиев Р. А.	Колхоз	
9	Алиев Р. А.	Колхоз	
10	Алиев Р. А.	Колхоз	
11	Алиев Р. А.	Колхоз	
12	Алиев Р. А.	Колхоз	
13	Алиев Р. А.	Колхоз	
14	Алиев Р. А.	Колхоз	
15	Алиев Р. А.	Колхоз	
16	Алиев Р. А.	Колхоз	
17	Алиев Р. А.	Колхоз	
18	Алиев Р. А.	Колхоз	
19	Алиев Р. А.	Колхоз	
20	Алиев Р. А.	Колхоз	
21	Алиев Р. А.	Колхоз	
22	Алиев Р. А.	Колхоз	
23	Алиев Р. А.	Колхоз	
24	Алиев Р. А.	Колхоз	
25	Алиев Р. А.	Колхоз	
26	Алиев Р. А.	Колхоз	
27	Алиев Р. А.	Колхоз	
28	Алиев Р. А.	Колхоз	
29	Алиев Р. А.	Колхоз	
30	Алиев Р. А.	Колхоз	
31			
32			
33			
34			
35			
36			
37			
38			
39			

40	Алиев Р. А.	Колхоз	
41	Алиев Р. А.	Колхоз	
42	Алиев Р. А.	Колхоз	
43	Алиев Р. А.	Колхоз	
44	Алиев Р. А.	Колхоз	
45	Алиев Р. А.	Колхоз	
46	Алиев Р. А.	Колхоз	
47	Алиев Р. А.	Колхоз	
48	Алиев Р. А.	Колхоз	
49	Алиев Р. А.	Колхоз	
50	Алиев Р. А.	Колхоз	
51	Алиев Р. А.	Колхоз	
52	Алиев Р. А.	Колхоз	
53	Алиев Р. А.	Колхоз	
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			

List of participants of public hearings and consultation meeting, village of Ak-Dobo

Список участников общественных слушаний и консультативной встречи в Ак - Добо авыл иезмугу Бакай Атинского района, 3 октября 2017.
17:00 – село Ак - Добо

No	ФИО	Название организации	Контактные данные
1	Алиев Р. А.	Колхоз	
2	Алиев Р. А.	Колхоз	
3	Алиев Р. А.	Колхоз	
4	Алиев Р. А.	Колхоз	
5	Алиев Р. А.	Колхоз	
6	Алиев Р. А.	Колхоз	
7	Алиев Р. А.	Колхоз	
8	Алиев Р. А.	Колхоз	
9	Алиев Р. А.	Колхоз	
10	Алиев Р. А.	Колхоз	
11	Алиев Р. А.	Колхоз	
12	Алиев Р. А.	Колхоз	
13	Алиев Р. А.	Колхоз	
14	Алиев Р. А.	Колхоз	
15	Алиев Р. А.	Колхоз	
16	Алиев Р. А.	Колхоз	
17	Алиев Р. А.	Колхоз	
18	Алиев Р. А.	Колхоз	
19	Алиев Р. А.	Колхоз	
20	Алиев Р. А.	Колхоз	
21	Алиев Р. А.	Колхоз	
22	Алиев Р. А.	Колхоз	
23	Алиев Р. А.	Колхоз	
24	Алиев Р. А.	Колхоз	
25	Алиев Р. А.	Колхоз	
26	Алиев Р. А.	Колхоз	
27	Алиев Р. А.	Колхоз	
28	Алиев Р. А.	Колхоз	
29	Алиев Р. А.	Колхоз	
30	Алиев Р. А.	Колхоз	
31	Алиев Р. А.	Колхоз	
32	Алиев Р. А.	Колхоз	
33	Алиев Р. А.	Колхоз	
34	Алиев Р. А.	Колхоз	
35	Алиев Р. А.	Колхоз	
36	Алиев Р. А.	Колхоз	
37	Алиев Р. А.	Колхоз	
38	Алиев Р. А.	Колхоз	
39	Алиев Р. А.	Колхоз	

40	Алиев Р. А.	Колхоз	
41	Алиев Р. А.	Колхоз	
42	Алиев Р. А.	Колхоз	
43	Алиев Р. А.	Колхоз	
44	Алиев Р. А.	Колхоз	
45	Алиев Р. А.	Колхоз	
46	Алиев Р. А.	Колхоз	
47	Алиев Р. А.	Колхоз	
48	Алиев Р. А.	Колхоз	
49	Алиев Р. А.	Колхоз	
50	Алиев Р. А.	Колхоз	
51	Алиев Р. А.	Колхоз	
52	Алиев Р. А.	Колхоз	
53	Алиев Р. А.	Колхоз	
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			

Photos of public hearings



Participants of public hearings in the village of Ak-Dobo



Participants of public hearings in the village of Kyzyl-Sai

Protocol

Public consultations in Kyzyl Sai and Ak Dobo villages, Bakai Ata region Talas oblast

Participants:

- Residents of Ak Dobo and Kyzyl Say
- Head of the state administration of Bakai - Ata district,
- The head of Ak-Dobo ayil okmotu,
- Chief Engineer of the Regional Department No. 3 in the Talas oblast (Department of Road Facilities under the Ministry of Transport and Roads of the Kyrgyz Republic),
- Head of the Department of Economics № 47,
- Mr. Yamajuku (Chief Consultant)
- Mr. Ohashi (Deputy of Chief Consultant)
- Mr. Rasul (Project Coordinator)
- Mr. Konstantin Du (Engineer)

1. The head of Ak - Dobo Ayil Okmotu - Orozbaev Jamal made a welcoming speech.
2. Chief engineer of the Regional Department No. 3 in the Talas oblast (Department of Road Facilities under the Ministry of Transport and Roads of the KR) - Sadiraliev Nurkan and the head of DEU # 47 - Sultankulov Talai informed about the design parameters of the bridge and the importance of the bridge reconstruction.
3. Engineer Konstantin Diu informed about bridge design details and approval of preliminary EIA by SAEPP.
4. The head of Bakai Ata district administration, Mr. Torokulov, informed the villagers about the importance of the bridge reconstruction and expressed gratitude to the international experts.
5. Discussion and questions of villagers.

Purpose of Public consultations

The purpose of public hearings and consultations is to inform residents of Ak Dobo and Kyzyl Sai on the current status of the project "Reconstruction of Urmal River Bridge on Talas-Taraz road in Kyrgyz Republic".

Date	Location	Content	Organizers of the hearing, speakers
April 21 2018 Time: 14:00 – 14:50	Kyzyl- Say village	- Bridge design details information - Approval of preliminary EIA report by SAEPP - Bridge details Information - Answers of Japanese experts on the questions of the local population.	1. Head of Ak-Dobo ayil okmotu - Orozbaev Zhamalbek 2. The head of the administration of Bakai Ata district - Torokulov Cholpon 3. Chief engineer of the Regional Department No. 3 in the Talas oblast (Department of Road Facilities under the Ministry of Transport and Roads of the Kyrgyz Republic) Sadiraliev Nurkan

			4. Head of DEP №47 - Sultankulov Talai 5. Engineer Konstantin Diu
April 21 2018 Time: 15:00 – 15:55	Ak Dobo village	- Bridge design details information - Approval of preliminary EIA report by SAEPF - Bridge details Information - Answers of Japanese experts on the questions of the local population	1. Head of Ak-Dobo ayil okmotu - Orozbaev Zhamalbek 2. The head of the administration of Bakai Ata district - Torokulov Cholpon 3. Chief engineer of the Regional Department No. 3 in the Talas oblast (Department of Road Facilities under the Ministry of Transport and Roads of the Kyrgyz Republic) Sadiraliev Nurkan 4. Head of DEP №47 - Sultankulov Talai 5. Engineer Konstantin Diu

The questions asked by participants of public hearings and consultations

Question 1. When Bridge construction will start? Answer 1. Construction will start in May 2019 and will be finished in November 2021.
Question 2. Is it possible to involve the local population in the construction of a bridge? Answer 2: The contractor will hire local residents, and residents should have appropriate experience.
Question 3. What is the length of the new bridge? Answer 3. The length of the new bridge is around 90 meters and the length of approach roads is 1 100 meters.
Question 4. What is the width of the new bridge? Answer 4. The width of the new bridge is 14.8 meters; 1.5 meters are allotted to the sidewalks on both sides of the bridge.
Question 5. How Japanese government provides the assistance for bridge reconstruction? Answer 5. The Japanese Government provides gratuitous assistance on a grant basis.
Question 6. What height of the new bridge in relation to the old bridge? Answer 6. The new bridge will be 2.5-3 meters higher than the old one, this will improve visibility of the road from the bridge side. The sidewalk will provide safety for pedestrians crossing the bridge.

The participants of the public hearings were acquainted with the details of the project and the report on the preliminary EIA for the reconstruction of Urmalar River Bridge and expressed their readiness for cooperation during the construction of the bridge. Residents of the villages informed international engineers about the annual problems during spring floods.

Residents Ak Dobo and Kyzyl Say expressed their gratitude to all the participants involved for the reconstruction of the bridge.

List of participants for public hearings and consultation meeting in Ak - Dobo, April 21, 2018.
Ak-Dobo village.

№	Name	Position	Contact details
1	Torokulov Cholpon	Head of Bakai Ata Administration	
2	Orozbaev Jamalbek	Head of Ak Dobo Ayil Okmotu	
3	Sadyraliev Nurkan	Chief Engineer of RMD №3	
4	Sultankulov T.	Head of DEP №47	
5	Kojorkulov Adylbek	deputy of the local council	
6	Subanova Indira	housewife	
7	Ailchieva Nazira	housewife	
8	Omorkanov Zakir	housewife	
9	Ulbaev Ramis	peasant	
10	Soltoev Ashat	peasant	
11	Umaralieva Cholpon	obstetrician	
12	Omarova G.	tutor	
13	Konoeva K.	housewife	
14	Beshkempirova Z.	housewife	
15	Kermasheva B.	pensioner	
16	Moinokova A.	pensioner	
17	Cuirueva Jibek	housewife	
18	Karabaeva K.	housewife	
19	Rehmankulova G.	pensioner	

List of participants of public hearings and consultation meeting in Kyzyl Sai, April 21, 2018.
Kyzyl Sai village.

№	Name	Position	Contact details
1	Torokulov Cholpon	Head of Bakai Ata Administration	
2	Orozbaev Jamalbek	Head of Ak Dobo Ayil Okmotu	
3	Sadyraliev Nurkan	Chief Engineer oh RMD №3	
4	Kojorkulov Adylbek	deputy of the local council	
5	Sultankulov T.	Head of DEP №47	
6	Malisov Bakytbek	farmer	

7	Belekov Nurkan	farmer	
8	Mataev Kurmanbek	driver	
9	Esenamaev D.	farmer	
10	Omurbekov Maksat	farmer	
11	Amankulov Bektursun	builder	
12	Malison Nurbek	builder	
13	Malisov Aaly	farmer	
14	Abykan u. Taalai	farmer	
15	Jusupbaeva J.	Teacher	
16	Babyrova N.	Teacher	
17	Amarkanova Jenish	Pensioner	
18	Kultaev Seitkazy	Farmer	
19	Omorkanov Ilyas	Farmer	
20	Kultaev Altynbek	Tractor driver	
21	Omorkanov Esenbek	pensioner	
22	Shukuev Tolon	pensioner	
23	Janchykulova J.	a housewife	
24	Kojobekov A.	pensioner	
25	Jumankulov Jyrgalbek	farmer	

Public consultations

Participants of public consultations in Ak-Dobo



Participants of public consultations in Kyzyl-Sai



(6) Axle survey data

101	3	5740	8080	7700	21520
102	3	5700	7500	7900	21100
103	3	5300	8440	8320	22060
104	3	4960	8400	8540	21900
105	3	4540	8450	8380	21370
106	3	4200	8340	8400	20940
107	3	4560	8740	8460	21760
108	3	5400	8000	7820	21220
109	3	5300	7300	7400	20000
110	3	5480	8340	8220	22040
111	3	6700	8020	8740	23460
112	3	3500	8480	8580	20560
113	3	4660	8200	8540	21400
114	3	4180	8740	8660	21980
115	3	5360	8340	8200	21900
116	3	5160	8040	8800	22000
117	3	4780	8600	8220	21600
118	3	5380	8720	8540	22640
119	3	5300	7600	7840	20540
120	3	5040	8540	8600	22180
121	3	4380	8480	8420	21280
122	3	5180	8540	8360	22080
123	3	4300	8200	8300	20800
124	3	5560	7880	7800	21020
125	3	5820	7900	7720	21440
126	3	5940	8150	7700	21390
127	3	5080	7340	7128	19548
128	3	5230	7320	7130	19680
129	3	6810	7480	7630	21920
130	3	5360	6140	6840	18340
131	3	5980	6730	6990	19700
132	3	5940	7800	7740	21480
133	3	6180	8240	8220	22640
134	3	5860	8540	8080	22480
135	3	5780	8380	8000	22160
136	3	6580	7620	8000	22200
137	3	4810	7920	7860	20590
138	3	8120	10760	7620	26500
139	3	4400	8360	8560	21320
140	3	6720	8320	7840	22880
141	3	6180	7740	7900	21420
142	3	6120	7800	8000	21920
143	3	5220	7740	7540	20500
144	3	5140	8020	7200	20360
145	3	6140	8100	8000	22240
146	3	4880	8000	8320	21200
147	3	7220	8240	8080	23380
148	3	6100	8700	8580	23380
149	3	5120	7440	7160	19720
150	3	5180	7880	7860	20920
151	3	4340	7480	7320	19140
152	3	5360	7820	7940	20720
153	3	4140	8140	8240	20520
154	3	7660	7070	7140	21870
155	3	6920	7840	8440	23200
156	3	6780	7000	7780	21560
157	3	7400	10300	7780	25480
158	3	6340	10180	6860	23380
159	3	7560	7860	7000	22420
160	3	6740	8520	8190	23450

161	3	8340	8990	5300	22630
162	3	5700	7900	7080	20680
163	3	5320	8220	7720	21260
164	3	7640	7040	7840	22520
165	3	7240	7580	7160	21930
166	3	3440	7260	7080	17780
167	3	5680	7740	7680	21100
168	3	6340	8960	8380	23680
169	3	6180	8440	8400	23020
170	3	6660	8420	7960	23040
171	3	6280	7960	8180	22420
172	3	6280	7960	8380	22620
173	3	4880	8340	8020	21220
174	3	7500	9680	7820	25000
175	3	6900	9360	7180	23440
176	3	5680	10760	7140	23580
177	3	6420	9640	7040	23100
178	3	4660	8700	8640	22000
179	3	7680	10480	7620	25740
180	3	6620	10180	5660	22460
181	3	6700	10340	7500	24540
182	3	6420	8340	8280	23040
Average					7302
Maximum					10800

[4 Axle car]
Date: Sep 18-23, 2017

NO.	Number of axels	Axel Loads (kg)							Total	Remarks
		1	2	3	4	5	6	7		
1	4	6480	6880	10780	6280				30420	
2	4	3500	4000	3000	3000				13500	
3	4	6740	7400	5480	5480				24880	
4	4	5720	9240	7180	9660				31880	
5	4	7200	10700	6980	7320				32400	
Average									6653	26612
Maximum									10780	32400

[5 Axle car]
Date: Sep 18-23, 2017

NO.	Number of axels	Axel Loads (kg)							Total	Remarks
		1	2	3	4	5	6	7		
1	5	3940	8840	9600	7560	7680			36620	
2	5	6620	9960	7960	7220	7380			38740	
3	5	6850	9100	7260	7320	7220			37750	
4	5	6560	10700	7900	7640	7780			40580	
5	5	6380	8380	8220	7400	7260			37640	
6	5	4550	8700	8220	5400	5300			32170	
7	5	4840	8540	8160	7040	7080			35680	
8	5	4780	8040	8420	7820	7440			38500	
9	5	6400	8340	8460	6020	5700			34920	
10	5	6160	8660	6760	6800	6800			35300	
11	5	6580	8600	5740	8440	8440			37800	
12	5	5920	9860	6240	6440	6480			34940	
13	5	6000	9820	5440	6100	6240			33600	
14	5	7860	10260	6420	6360	6380			37280	
15	5	6380	9860	6000	6300	6060			34600	
16	5	6000	8560	8440	7860	7860			38720	
17	5	7420	10800	7800	9300	8920			44240	
18	5	6280	7480	5840	5700	5700			31000	
19	5	6180	8800	6420	6450	6380			34210	
20	5	6160	8520	7260	7220	7060			36220	

86	5	4020	8460	8260	7880	8140			36760
87	5	6300	5640	3560	5920	5720			27140
88	5	7960	10560	6720	9040	9000			43280
89	5	6780	10580	6380	6400	6660			36800
90	5	5220	8040	7900	8320	8520			38000
91	5	6480	8740	4720	4600	4200			28720
92	5	6200	8760	4620	5400	5200			30180
93	5	6820	8720	7420	7360	7160			37480
94	5	7660	10040	6680	8720	8560			41660
95	5	6440	8660	5440	5380	5180			31360
96	5	5980	8560	7000	7400	7380			36320
97	5	6480	8060	6840	6920	7080			35380
98	5	6680	9060	7180	6960	7180			37060
99	5	7020	12040	7940	7260	7260			41120
100	5	6340	10660	7520	7400	7820			39740
101	5	7660	10300	7240	9060	8820			43080
102	5	6780	10800	7200	7160	8380			40320
103	5	6920	9040	4400	6880	6880			37120
104	5	7660	9360	7320	6960	6820			38120
105	5	6480	8940	7380	7400	7300			37500
106	5	6820	10720	7480	7120	7280			39420
107	5	7980	10080	7040	8420	8940			42460
108	5	6280	8180	2300	7660	7380			36800
109	5	7540	10800	5820	5600	5820			35280
110	5	6980	8440	6640	6720	6700			35480
111	5	6720	9960	6400	9440	9440			41960
112	5	6320	7820	4860	4880	5020			28900
113	5	5100	8800	8620	8800	9520			40640
114	5	7840	10520	6920	8920	8940			43140
115	5	4640	8600	8560	7960	8240			38020
116	5	4440	8240	8580	8660	8620			38540
117	5	6480	9260	4280	7080	6760			33860
118	5	7280	10260	7820	7860	7360			40900
119	5	7900	10400	7880	7580	7140			40900
120	5	6760	7180	4360	4360	4240			28900
121	5	6720	8700	6760	6480	6220			34880
122	5	6540	6420	3960	3960	3840			24720
123	5	6180	7520	4340	4180	4420			26640
124	5	6240	6840	2740	2800	2800			21420
125	5	7060	10460	5880	3560	3440			30400
126	5	6500	6660	4080	4100	4160			25500
127	5	6240	5960	3600	3600	3560			22960
128	5	7220	10600	7480	7540	7420			40260
129	5	6240	7440	4200	5440	3520			26840
130	5	7280	9440	6580	6760	6800			36860
131	5	6740	8020	7160	7260	7400			36580
132	5	6580	8900	6980	7100	6800			36340
133	5	5700	8240	7500	7360	7680			36480
134	5	6560	9900	6120	5980	8520			37080
135	5	6960	9520	6980	7120	6940			37520
136	5	6680	10020	7500	6580	6820			37680
137	5	7240	9540	5220	7000	6940			35940
138	5	7080	10300	6940	6940	7000			38260
139	5	6240	8300	4700	7650	7100			33990
140	5	5700	8300	5420	5200	4900			29520
141	5	6620	9640	7420	7540	7320			36540
142	5	6400	8840	7060	7160	7300			36760
143	5	4700	8260	8400	8900	8540			38800
144	5	7200	10660	7260	6980	7520			39620
145	5	5700	10700	6980	7640	7820			40120
146	5	5920	8060	6520	6840	6880			34320
147	5	6700	9000	7260	6940	6880			36880
148	5	5920	9060	7120	7220	6880			36200
149	5	7420	9420	5880	7580	8200			38500
150	5	6540	10220	5780	9100	8960			40600

21	5	6240	9220	7240	7280	7220			37200
22	5	4980	8460	8340	7640	7480			36900
23	5	6760	9280	7220	7320	6380			36960
24	5	6740	8820	7320	7300	7140			37320
25	5	6980	8960	7520	7120	7060			37640
26	5	7120	10800	7240	9220	8880			43260
27	5	3600	7580	7400	2800	7060			28440
28	5	5220	8600	8660	8380	8160			39020
29	5	6420	9540	6020	6100	6340			34420
30	5	6060	8060	7920	6760	6740			35540
31	5	4600	7280	7320	7100	7200			33480
32	5	5780	8000	7920	8400	8820			38920
33	5	6920	7980	8020	8780	7860			39460
34	5	6340	9400	7020	7220	7320			37960
35	5	7080	10520	6740	6560	6760			37660
36	5	5820	5080	2260	2380	2380			17920
37	5	6820	9080	6780	6980	7040			36700
38	5	6180	8700	7260	7240	7120			36500
39	5	3900	6020	5860	8140	7780			31800
40	5	5540	9640	6220	7680	7600			36680
41	5	7040	10180	5840	7580	7800			38440
42	5	6340	9420	6720	7100	6840			36420
43	5	6560	9140	6800	6840	6860			36200
44	5	6400	9220	6820	7020	7160			36220
45	5	7640	10540	7760	6940	6360			38940
46	5	6640	8680	7260	7340	7260			37180
47	5	6660	10680	7600	7780	7640			40360
48	5	7320	10380	7780	7700	7620			40800
49	5	6480	10560	5660	8780	8960			40440
50	5	5340	8540	8640	7780	6940			37240
51	5	6420	9440	7660	7560	7440			38520
52	5	7700	7620	6400	7520	7180			36420
53	5	6900	9380	6460	6360	6340			35440
54	5	7140	8700	5360	7140	6960			35300
55	5	6620	9940	7640	7880	8040			40120
56	5	6080	7280	5080	5020	4900			23480
57	5	6420	6090	3820	3460	3500			23090
58	5	6560	9520	5820	6240	5940			30480
59	5	6520	7720	5560	5360	5720			30880
60	5	7020	9120	7140	6840	6480			36600
61	5	5340	7500	3800	5560	5540			27740
62	5	7060	8380	6900	6900	6940			36180
63	5	6920	9340	7100	7280	7280			37920
64	5	6240	8780	6880	6680	6920			35300
65	5	7120	10800	7540	8280	8260			42000
66	5	7440	10580	7680	8040	8060			41800
67	5	6780	10040	7340	7220	7140			38520
68	5	6640	10280	7480	7260	7560			39220
69	5	6500	8240	5800	5180	5360			31080
70	5	6560	10340	6080	6200	5860			35040
71	5	6260	9220	7620	7860	7400			38360
72	5	6860	8800	7140	7160	6800			36760
73	5	6100	9040	7580	7680	7740			38140
74	5	6620	10200	5740	6680	5720			33960
75	5	7120	10000	6720	6620	6800			37260
76	5	3140	9040	7540	7600	7500			34820
77	5	6340	8180	7880	7440	7400			37040
78	5	6440	9600	6980	7100	7080			37200
79	5	6100	9580	7420	6960	7040			37100
80	5	5700	8920	5820	5700	6120			32760
81	5	6540	8980	6760	6780	6820			35860
82	5	7100	9700	6780	7020	6900			37500
83	5	5820	10340	7820	7640	7660			39280
84	5	6500	9740	6800	6720	7320			37080
85	5	6120	6620	3880	3840	3860			24320

281	5	6800	8540	7120	7060	7080			36620
282	5	7340	8120	7160	7000	7000			36620
283	5	6240	8720	7160	7080	6940			36140
284	5	8600	9880	6880	7840	7440			40840
285	5	1020	5100	2620	2560	2540			13840
286	5	6380	7140	5720	5040	5060			29340
287	5	5980	10100	6360	8280	8140			38860
288	5	8880	10600	6700	7240	6840			38260
289	5	6460	8920	7420	7460	7420			37660
290	5	6720	9400	6920	6900	6720			36660
291	5	5580	10200	6940	8540	8720			39980
292	5	6960	7260	4780	5360	5380			29140
293	5	6500	8640	7200	6900	6760			36000
294	5	7700	10760	6920	6480	6760			38820
295	5	7400	9840	6940	7180	7160			38520
296	5	4780	8420	8360	7440	8240			37240
297	5	7540	10740	7240	8340	8640			42500
298	5	6080	4840	4660	5300	5280			26160
299	5	7040	9520	6140	6020	5640			34360
300	5	7120	9260	7120	6920	6920			37340
301	5	7700	10380	7000	8180	8520			41780
302	5	6600	9520	6640	6680	6740			36180
303	5	6460	9440	7120	7060	7180			37260
304	5	8220	10100	5640	7060	7100			36120
305	5	7440	10660	7780	7720	7960			41960
306	5	7000	9520	7100	6040	6040			35700
307	5	5100	8280	8400	7140	7920			36640
308	5	6920	9340	6840	6940	6740			36780
309	5	6840	9940	6220	6920	7560			37480
310	5	7260	10260	7240	6500	6420			37680
311	5	7800	8920	5820	6980	7020			34940
312	5	6500	8000	7760	7300	7600			37160
313	5	7200	9980	6740	9000	7920			40840
314	5	6160	4440	3740	3720	3880			21940
315	5	6780	9180	6420	6880	6780			36640
316	5	7140	10260	6660	8340	8860			41260
317	5	6920	8420	7360	7360	7480			37560
318	5	6520	8660	7160	6940	7080			36360
319	5	6340	8560	7160	7220	7240			36520
320	5	6820	10420	6880	8840	7780			40540
321	5	9140	8460	8380	6760	6940			39680
322	5	7670	10000	7560	7900	7520			40250
323	5	7360	10770	7060	7360	7320			39670
324	5	7300	10320	6880	8620	8640			41560
325	5	6700	9840	5400	6640	7940			37520
326	5	6960	9520	5660	5720	8040			35900
327	5	6840	10370	6120	7640	8360			39530
328	5	6840	10320	6120	7640	7360			38280
329	5	6680	10680	7420	7640	7280			39700
330	5	7540	10600	7920	7940	7440			41440
331	5	6840	10310	7640	7360	6870			39020
332	5	6840	10520	7100	6900	6960			38520
333	5	6740	9820	6580	8460	8220			39820
334	5	5880	9640	6040	8840	5060			35460
335	5	7380	10300	6360	9120	8500			41660
336	5	6160	9460	7320	7360	7360			31660
337	5	6480	7500	6060	5920	5640			31600
338	5	6700	8600	6740	6620	6480			35140
339	5	7560	10240	7540	9060	9020			43420
340	5	8060	10720	7440	7840	8260			42320
341	5	6500	7780	6240	5900	5680			32100
342	5	6740	9720	6860	7060	7160			37640
343	5	5880	8220	3980	4360	4340			26780
344	5	7880	9940	6800	8340	7920			40880
345	5	8720	9960	6540	8460	8420			42100

346	5	5840	8150	8090	7180	7750			37010
347	5	7940	10380	7660	7200	7680			40760
348	5	7480	10620	7720	7920	7700			41440
349	5	7060	9560	6000	5960	5840			34420
350	5	7600	10700	7660	7380	6780			40120
351	5	6420	10300	8080	8020	7720			40540
352	5	6440	9100	6520	6860	6860			35540
353	5	6980	8760	5740	5500	5660			32640
354	5	3360	5880	5900	7860	7680			30580
355	5	7740	10420	7380	8340	7840			41720
Average								7407	37033
Maximum								12040	44240

[6 Axle car]
Date: Sep 18-23, 2017

NO.	Number of axels	Axel Loads (kg)							Total	Remarks
		1	2	3	4	5	6	7		
1	6	4380	8620	8700	7220	7220	7280		43400	
2	6	5300	10160	5220	8620	8540	8320		46160	
3	6	7080	8980	8220	7560	7520	7400		46760	
4	6	6920	10060	7920	8640	6720	8060		48320	
5	6	7560	9560	5580	7720	6020	6520		42960	
6	6	3880	6760	6480	5900	5540	5740		34300	
7	6	6600	10040	5740	7760	7740	7580		45460	
8	6	6260	4260	9800	7500	7840	7700		43360	
9	6	5900	4140	9100	7420	7680	7740		41980	
10	6	6700	10440	7300	7600	7660	7500		47200	
11	6	6940	3280	9060	7360	7840	7680		41960	
12	6	6000	10040	5780	7760	7440	7580		44600	
13	6	6400	9240	8160	7250	7200	7450		45700	
14	6	7260	8500	7600	7260	7360	6340		44780	
15	6	7260	8380	6580	7280	6300	5840		41640	
16	6	6120	8660	5500	5460	5480	6220		37440	
17	6	5340	6780	6360	6720	6680	6640		38520	
18	6	6020	6380	6100	6400	6280	6140		37320	
19	6	5420	9860	6220	8000	8020	7900		45420	
20	6	5600	5170	8180	7920	8020	8160		43030	
21	6	7000	9920	6340	6960	7780	7840		45840	
22	6	5540	7960	8580	7000	6900	6980		42960	
23	6	6760	10480	6420	6700	6520	5540		42420	
24	6	4220	3500	5960	5180	5200	5540		29600	
25	6	6420	10620	7640	6160	6160	6880		43880	
26	6	7120	10120	7540	7600	7650	7300		47330	
27	6	5100	3500	7300	7300	7200	7100		37500	
28	6	4080	8380	8200	4940	7460	7800		40840	
29	6	5860	7120	10680	6020	6360	6740		42780	
30	6	6700	7620	4620	5400	6440	7000		37780	
Average								7063	42375	
Maximum								10680	48320	

[7 Axle car]
Date: Sep 18-23, 2017

NO.	Number of axels	Axel Loads (kg)							Total	Remarks
		1	2	3	4	5	6	7		
1	7	6840	5880	9100	5640	6420	5240	4980	44100	
Average									6300	44100
Maximum									9100	44100

(7) Pavement design calculation

Required pavement structure index

Pavement design section		CBR 6	CBR 6	CBR 6
Predicted number of 18-kip equivalent single axle load applications	W18	2,306,833	2,306,833	2,306,833
Functional Classification (Principal)	R (%)	85	85	85
Standard normal deviate	ZR	-1.037	-1.037	-1.037
Combined standard error of the traffic prediction and performance prediction	S0	0.45	0.45	0.45
Initial Serviceability	P0	4.2	4.2	4.2
Terminal Serviceability	P1	2.5	2.5	2.5
Difference between the initial (P0) and terminal (P1) serviceability	ΔPSI	1.7	1.7	1.7
CBR (%)	CBR	6	6	6
Resilient modulus (psi)	MR	9,000	9,000	9,000
Structural number for the pavement	SN	3.565	3.565	3.565

$$\log_{10}(W_{18}) = Z_R \times S_0 + 9.36 \times \log_{10}(SN+1) - 0.20 + \left[\log_{10} \left[\frac{\Delta PSI}{(4.2 - 1.5)} \right] / \left[\frac{0.40 + 1094}{(SN+1)^{5.19}} \right] \right] + 2.32 \times \log_{10}(M_R) - 8.07$$

The left side of an equation $\log_{10}(W18)=$	6.363	6.363	6.363
The right side of equation=	6.363	6.363	6.363

Structural number for the proposed pavement

Pavement composition (New road)	Layer drainage coefficient	coefficient (a)			
Pavement design section			CBR 6	CBR 6	CBR 6
Asphalt Concrete Surface Course	-	0.440	5.0	5.0	5.0
Base Course	0.9	0.140	25.0	15.0	15.0
Subbase Course	0.8	0.110	25.0	30.0	25.0
Structural number for the proposed pavement (SN)			3.88	3.60	3.75
Decision			OK	OK	OK

