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Ministry of Transport and Roads
Of Kyrgyz Republic

Database System Manual for Bridge & Tunnel



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1 General Information

1.1 Database Operation Flow

This database system is the database for bridge and tunnel in Kyrgyz Republic. The database is operated on FileMaker software*. The data for the inspection of bridge should be stored in the database and managed by Asset Management Section (hereinafter as refer to AMS) in Road Maintenance Department (hereinafter as refer to RMD).

Database operation flow is shown in Figure 1-1.

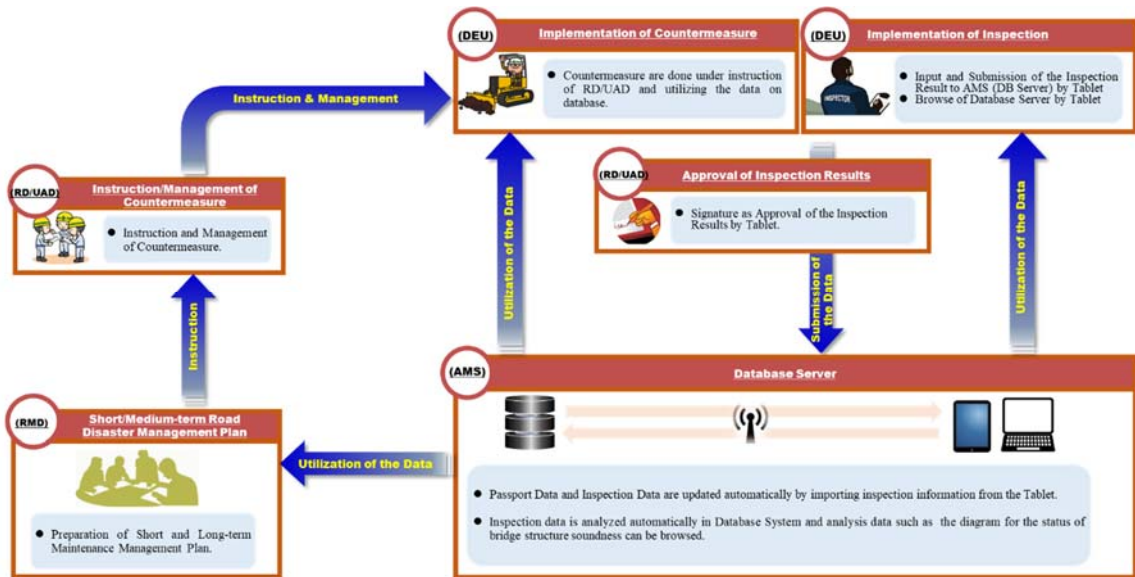


Figure 1-1 Database Operation Flow

Main menu of the database is shown in Figure 1-2. There are two types of database system, “Host PC version” and “iPad version”. The functions of the database system are as follows.

- ✓ To browse bridge passport data.
- ✓ To browse tunnel passport data.
- ✓ To record bridge inspection data.
- ✓ To record tunnel inspection data.
- ✓ To manage bridge passport data and inspection result. (only Host PC version)
- ✓ To input bridge inspection data. (only iPad version)
- ✓ To input tunnel inspection data. (only iPad version)



Figure 1-2 Main Menu

1.2 Database Structure

1.2.1 Database Equipment

The database system consists of a database server (MacBook Pro) and a portable hard disk for data backup. Database equipment is shown in Photo 1-1.



Photo 1-1 Database System Equipment

(1) Database Server

The database server is MacBook Pro which is placed on the left in Photo 1-1. The software for database “FileMaker Server” is installed in this computer. This software can run only on two operating systems, Windows Server and Mac OS X. Windows Server is not popular in operating systems. Therefore, OS X is selected as an operating system for this database system.

The original database file should be stored in the database server. The location where original file should be stored is the folder which name is “Databases alias” on desktop.

(2) Operating Computer

The database server is a device just to store the original data file and the data files in it cannot be operated by MacBook PRO (database server computer). To manipulate the data files on the database server, an operating computer is needed.

The operating computer is Windows PC of Dell. A database software, FileMaker Pro, should be installed to the operating computer because the software is necessary to access the database server and operate the database files.

(3) Storage for Data Backup

The database system has two external HDDs for data backup and automatically backs up the all data stored in the database server daily. The frequency of data backup can be changed, for example every 2days, weekly, or monthly. Initial setting is daily.

1.2.2 Access to Equipment from Outside

The database system can accept 5 connections from iOS device, iPhone and/or iPad, in outside of the database system.

To access the database system by iOS device, application software, FileMaker Go, should be installed into the devices. FileMaker Go can be downloaded for free from App Store which is one of preinstalled applications in iOS device.

1.2.3 Installation Software

The software used in the database system is of FileMaker series, and three software shown below is necessary to use the database system.

(1) FileMaker server

This is software for database server. Detail information refers to URL below.
<http://www.filemaker.com/products/filemaker-server/>

(2) FileMaker Pro

This is software for database operation. Detail information refers to URL below.
<http://www.filemaker.com/products/filemaker-pro/>
Trial version of FileMaker Pro is prepared on the web site. it is possible to download from URL below.
http://info2.filemaker.com/FileMaker_Platform_Trial_Request.html

(3) FileMaker Go

This is an application for database operation from iOS device. Detail information refers to URL below.
<http://www.filemaker.com/products/filemaker-go/>

1.3 Database System

The database system for bridge and tunnel is divided into two main functions: Inspection and Browse as shown in Figure 1-3. Inspection function consists of Bridge List, Tunnel List, Passport Data and Bridge Inspection Sheet, Tunnel Inspection Sheet. Analysis function consists of Priority List, Priority Graph, Disaster Graph and Map Information. Responsibility for preparation of each information are shown in Table 1-1.

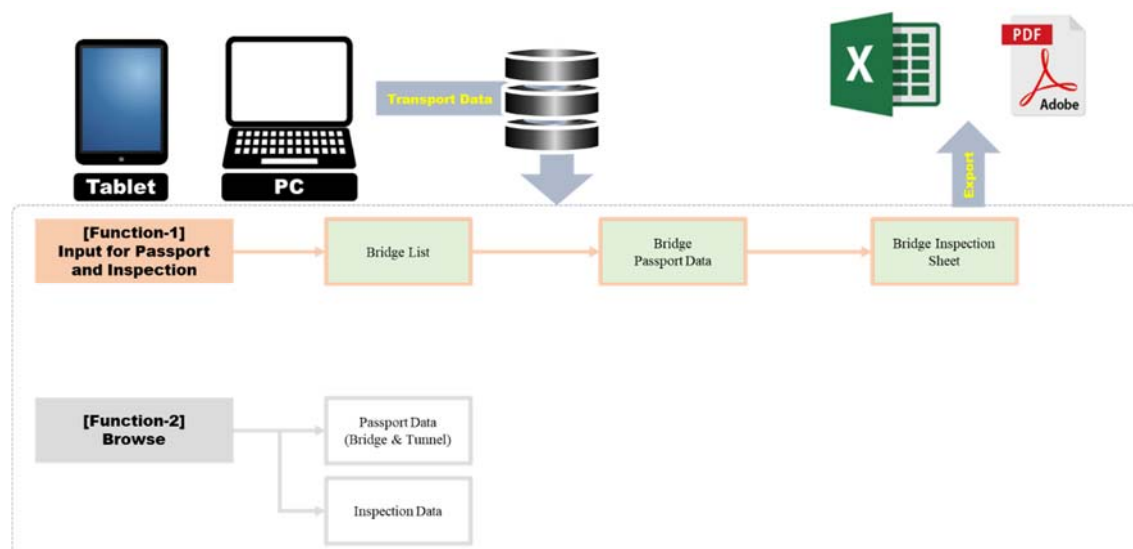


Figure 1-3 Framework of the Database

Table 1-1 Responsibility for Preparation of Each Information

Institutions	Role
RMD	<ul style="list-style-type: none"> To prepare the Short and Long-term Maintenance Management Plan by utilizing the Database.
AMS	<ul style="list-style-type: none"> To manage the Database System To update the Database System as necessary To provide the information on Database
RD/UADs	<ul style="list-style-type: none"> To approve the inspection results by signature To manage data collection activities by DEU
DEUs	<ul style="list-style-type: none"> To carry out the inspection and input the disaster data

1.4 Main Menu

Main Menu is shown in Figure 1-2. The functions and items in Table 1-2 are available from the main menu of the database system.

Table 1-2 Functions of Main Menu

No.*	Function	Remarks
1	Bridge passport data can be browsed and added by MOTR officials.	
2	Bridge passport data can be browsed and added by oblast.	
3	Tunnel passport data can be browsed.	
4.1	Inspection results of the bridge can be browsed.	
4.2	Inspection results of the tunnel can be browsed.	
5	Bridge and Tunnel passport data can be modified.	This function can be used by RMD
6	Collected data can be transferred to the server automatically in On-line field.	
7	Database can be terminated.	

*THE PROJECT FOR CAPACITY DEVELOPMENT
FOR ROAD DISASTER PREVENTION MANAGEMENT IN THE KYRGYZ REPUBLIC
PREPARATION OF DATABASE MANUAL FOR ROAD DISASTER PREVENTION*

8	Export Bridge Data	
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** No. corresponds to the number described in Figure 1-2*

2 Input Method for Inspection and Passport

2.1 General

This chapter describes general information and an input method for the inspection and passport in detail. Inspection of the bridge and tunnel, and passport data of bridge and tunnel are collected in order to utilize for bridge and tunnel maintenance management and preparation of Short/Long-term Maintenance Management Plan. Also, the inspection with the tablet should be implemented in the site by DEU staff.

2.1.1 Passport Data

Passport data of bridge and tunnel is basic information for bridge and tunnel management, including such as bridge length, location, structural type.

The formats of bridge and tunnel are shown in Figure 2-1 and Figure 2-2.

THE PROJECT FOR CAPACITY DEVELOPMENT
FOR ROAD DISASTER PREVENTION MANAGEMENT IN THE KYRGYZ REPUBLIC
PREPARATION OF DATABASE MANUAL FOR ROAD DISASTER PREVENTION

Система базы данных мостов и тоннелей в Кыргызской Республике
 Database System of Bridge and Tunnel in Kyrgyz Republic

Modify data

Назад Back
Печать/PDF Print / PDF
Начать инспекцию Start Inspection

ПУАД_УАД <small>PLUAD_UAD</small>	УАД_БНТ-УАД_БНТ	ДЭП <small>DEP</small>	ДЭП_957-DEP_957
Область <small>Oblast</small>	НАРЫН-NARYN	Состояние конструкции <small>Structural Condition</small>	Хорошее-Good

№ моста <small>Bridge No.</small>	1	Название реки/водотока <small>River/Stream Name</small>		Категория дороги <small>Road Class</small>	389+200	Международного значения- <small>International</small>	Год Постройки <small>Year Construction</small>	
Название дороги <small>Road Name</small>	Башка - Нарын - Тургарт_Водок - Науа - Тургарт		Местоположение, км <small>Location</small>	В. Д. г	75.8519444	С. Ш. г	41.2008333	
Расчетная нагрузка <small>Design Load</small>	НГ-80		Особенности <small>Remarks</small>	Особенности <small>Attributes</small>				

[Габариты [Ед.изм.: м]]
[Width Dimensions [Unit: m]]

длина моста <small>Bridge Length</small>	9	Ширина проезжей части <small>Roadway Width</small>	10	Ширина тротуара <small>Sidewalk Width</small>	Кол. Пролетов <small>No. of Span</small>	1
---	---	---	----	--	---	---

[Материал / Тип конструкции]
[Material - Structural Type]


Составная часть <small>Element</small>	Материал <small>Material</small>	Конструкция 1 <small>Structural Type 1</small>	Конструкция 2 <small>Structural Type 2</small>	Конструкция 3 <small>Structural Type 3</small>	Количество плит <small>No. of Girders</small>
Пролетное строение1 <small>Span/Structure1</small>	Бетон-Concrete	Плита-Slab	Простая-Simple		
Пролетное строение2 <small>Span/Structure2</small>					
Пролетное строение3 <small>Span/Structure3</small>					

Опорное строение <small>Substructure</small>	Бетон-Concrete	Одна опора-Single Pier	Высота опорного строения (м) <small>Height of Substructure</small>	5	Количество опор <small>No. of Substructure</small>	2
---	----------------	------------------------	---	---	---	---


[Другие элементы]
[Other parts]

пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>	пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>	пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>
Опорная подушка <small>Abutment</small>	Нет-Without		Температурный шов <small>Expansion Joint</small>	Есть-With	Закрытый шов- <small>Welded</small>	Перила <small>Railing</small>	Есть-With	Металл-Metal


Общий вид
Overview



Поверхность
Surface



Нижняя часть
Underneath






Figure 2-1 Passport Data Format for Bridge

Паспорт Тоннеля Tunnel Passport in Kyrgyz Republic					
Назад Back					
Название тоннеля Tunnel Name	Kolbaev Tunnel-Тоннель им. Колбаева	Название автодороги Road Name	Bishkek-Osh road-а/д Бишкек-Ош	Порядковый номер Reference Number	1
Длина тоннеля Tunnel Length	2540	Месторасположение Distance Post	130	Дата составления Creation Date	
Год завершения строительства тоннеля Completion Year	1964	Управление Согласно ДРП	ДЕР9-ДЭП9	Дата редактирования Revision Date	
Форма тоннеля по поперечному сечению Cross Section		Строение по ширине Width of Road		Месторасположение тоннеля Location Map	
		с северного портала Near the portal of Bishkek side			
		с южного портала Near the portal of Osh side			
Интенсивность движения Traffic Volume	2182				
Максимальная допустимая скорость Regulation Speed	40				
Форма движения Traffic Form	Both-way traffic-Двухстороннее движение				
Продольный уклон Longitudinal Slope	3.796 ~ -0.696				
Горизонтальное выравнивание Alignment					
Конструкция крепления тоннеля Tunnel Support Structure	Lining concrete and shotcrete (with thermal insulation material and Waterproof sheet)			Фотографии порталов тоннеля Photo of the tunnel portal	
Покрытие Pavement	Вид Type	Concrete pavement-Бетонное покрытие			
	Толщина Thickness				
Освещение Lighting	Вид и норма Type, Specification				
	Кол-во ламп Number				
Проветривание Ventilation	Раздел Type	Mechanic ventilation-Механическая вентиляция			
	Норма, кол-во Specification, Number	11 units, 30kW-11шт, 30kW			
Аварийное оборудование Facilities	Emergency phones 35 units-Аварийный телефон 35шт				
	CCTV 10 units-Камеры видеонаблюдения 10шт.				
	Reserve electric generator 1 unit-Личный электро-генератор 1шт.				
Получаемое напряжение Receiving Voltage	400V-400B			Северная сторона Bishkek side	Южная сторона Osh side

Figure 2-2 Passport Data Format for Tunnel

2.1.2 Bridge Inspection Sheet (Planned Inspection A)

Bridge inspection (Planned inspection A) should be conducted every 5 years to all bridge as the visual inspection (Details of bridge inspection are described in “Volume II: Bridge Maintenance Manual” prepared by the Project for Capacity Development for Maintenance Management of Bridges and Tunnels in the Kyrgyz Republic). The Inspection format of that is shown in Figure 2-3. The bridge condition of damages should be recorded to the format with the tablet so that the information is utilized to prepare for maintenance management plans of bridges.



Figure 2-3 Bridge Inspection Format of Planned Inspection A

2.2 Input Method for Bridge Inspection

2.2.1 Passport Data

2.2.1.1 Adding New Passport Sheet

When adding new passport data, select the “Add New Bridge Passport” button indicated in Figure 2-4. This will open a new passport sheet to add new bridge data as shown in Figure 2-5. In this sheet, the information such as Bridge No., Kilo Post and Bridge Type can be input and registered by tapping the “Add” button.

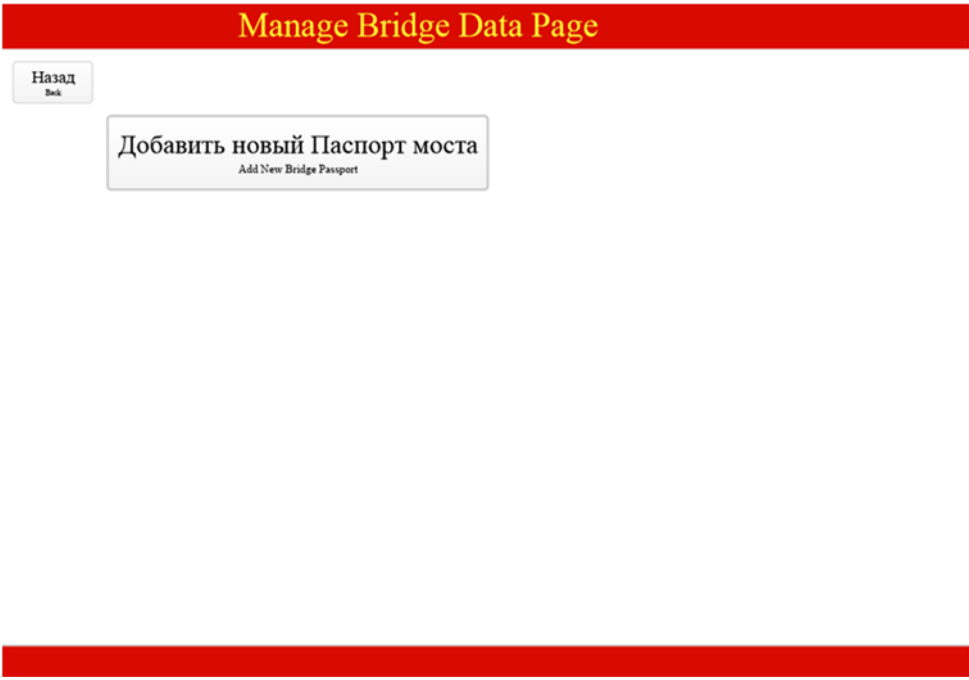


Figure 2-4 Adding the New Passport Data

Add New Bridge Passport
Добавить новый Паспорт моста

Назад
Back

ПЛУАД_УАД PLUAD_UAD		ДЭП DIP	
Область Oblast		Состояние конструкции Status of Structure	

№ моста Bridge No	Название реки/водотока River/Stream Name	Категория дороги Road Class	Год Постройки Year Construction
Название дороги Road Name	Местоположение, км Location	В Д E	С Ш N
Расчетная нагрузка Design Load	Особенности Particularities		Особенности Amendment

[Габариты [Ед.изм.: м]]
[Key Dimension [Unit: m]]

длина моста Bridge Length	Ширина проезжей части Roadway Width	Ширина тротуара Sidewalk Width	Кол. Пролетов No. of Spans
------------------------------	--	-----------------------------------	-------------------------------

[Материал / Тип конструкции]
[Material / Structural Type]

Составная часть Element	Материал Material	Конструкция 1 Structural Type 1	Конструкция 2 Structural Type 2	Конструкция 3 Structural Type 3	Количество плит No. of Slabs
Пролетное строение1 Span Structure 1					
Пролетное строение2 Span Structure 2					
Пролетное строение3 Span Structure 3					

Опорное строение Abutment		Высота опорного строения (м) Height of Abutment	Количество опор No. of Abutments
------------------------------	--	--	-------------------------------------

[Другие элементы]
[Other parts]

пункт Item	Наличие With or Without	Материал Material	пункт Item	Наличие With or Without	Материал Material	пункт Item	Наличие With or Without	Материал Material
Опорная подушка Bearing			Температурный шов Expansion Joint			Перила Railing		

Общий вид Overall	Поверхность Surface	Нижняя часть Underneath

Добавить
Add

Figure 2-5 New Passport Sheet

2.2.1.2 Input Method

The format of Bridge Passport Sheet is shown in Figure 2-6. Details of the input method for Bridge Passport Sheet are described as follows.

Система базы данных мостов и тоннелей в Кыргызской Республике
 Database System of Bridge and Tunnel in Kyrgyz Republic
 Modify data

Назад
Back
Печать/PDF
Print / PDF
Начать инспекцию
Start Inspection

ПЛУАД_УАД <small>PLUAD_UAD</small>	УАД_БТ <small>D_BNT</small>	ДЭП <small>DEP</small>	ДЭП_9 <small>P_957</small>
Область <small>Oblast</small>	НАРЬ <small>RYN</small>	Состояние конструкции <small>Structural Condition</small>	Хоро <small>Good</small>

№ моста <small>Bridge No</small>	Название реки/водотока <small>River/Stream Name</small>	Категория дороги <small>Road Class</small>	Междупро- летие <small>Interval</small>	Год_Постройки <small>Year_Construction</small>
Название дороги <small>Road_Name</small>	Бишкек - Нарын - Тору- Мукуй - Наур - Тонгайт	Местоположение, км <small>Location</small>	В Д К	75 344
Расчетная нагрузка <small>Design_Load</small>	НГ	Особенности <small>Features</small>	Особенности <small>Attributes</small>	

[Габариты [Ед. изм.: м]]
Back Dimension [Unit: m]

длина моста <small>Bridge Length</small>	Ширина проезжей части <small> roadway Width</small>	Ширина тротуара <small>sidewalk Width</small>	Кол. Пролетов <small>No. of Spans</small>
---	--	--	--

[Материал / Тип конструкции]
Material / Structural Type


Составная часть <small>Element</small>	Материал <small>Material</small>	Конструкция 1 <small>Structural Type 1</small>	Конструкция 2 <small>Structural Type 2</small>	Конструкция 3 <small>Structural Type 3</small>	Количество плит <small>No. of Girders</small>
Пролетное строение1 <small>SpanStructure1</small>	Бетон-Concrete	Плита-Slab	Простая-Simple		
Пролетное строение2 <small>SpanStructure2</small>					
Пролетное строение3 <small>SpanStructure3</small>					

Опорное строение <small>Substructure</small>	Бетон-Concrete	Одна опора-Single Pier	Высота опорного строения (м) <small>Height of Substructure (m)</small>	5	Количество опор <small>No. of Girders</small>	2
---	----------------	------------------------	---	---	--	---


[Другие элементы]
Other parts

пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>	пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>	пункт <small>Item</small>	Наличие <small>With or Without</small>	Материал <small>Material</small>
Торная подушка <small>Abutment</small>	Нет-Without		Температурный шов <small>Expansion Joint</small>	Есть-With	Закрытый шов- Buried	Перила <small>Railing</small>	Есть-With	Металл-Metal


Общий вид
Overview



Поверхность
Surface



Нижняя часть
Underpart






Figure 2-6 Bridge Passport Sheet

(1) PLUAD/UAD

PLUAD/UAD can be selected by the input space which is indicated as No.1 in Figure 2-6. Tap the input space and PLUAD/UAD can be selected from the list shown in below.

RD_No.1 (Chui region)
 RD_No.2 (Naryn region)
 RD_No.3 (Talas region)
 RD_No.4 (Issyk-Kul region)
 UAD JAB
 UAD_Bishkek_Osh
 UAD_Osh_Batken_Isfana
 UAD_Bishkek_Nayn_Torugart
 UAD_Osh_Sary_Tash_Irkeshtam

(2) DEP

DEP can be selected by the input space which is indicated as No.2 in Figure 2-6. Tap the input space and DEP can be selected from the list shown in below.

PLUAD /UAD	RD No.1	RD No.2	RD No.4	RD No.3	UAD JAB	UAD BO	UAD OBI	UAD BNT	UAD OSI
DEP	DEP 1	DEP 8	DEP 3	DEP 6	DEP 12	DEP 5	DEP 2	DEP 32	DEP 16
	DEP 25	DEP 14	DEP 4	DEP 19	DEP 17	DEP 9	DEP 13	DEP 34	DEP 21
	DEP 28	DEP 15	DEP 7	DEP 36	DEP 27	DEP 22	DEP 46	DEP 39	DEP 37
	DEP 40	DEP 18	DEP 10	DEP 47	DEP 31	DEP 23		DEP 41	DEP 44
	DEP 42	DEP 20	DEP 11	DEP 48	DEP 50	DEP 26		DEP 955	DEP 45
	DEP 43	DEP 24	DEP 33		DEP 51	DEP 30		DEP 957	DEP 959
	DEP 954		DEP 35		DEP 52	DEP 38			DEP 960
	DEP 958					DEP 956			

(3) Region

Region can be selected by the input space which is indicated as No.3 in Figure 2-6. Tap the input space and Region can be selected from the list shown in below.

CHUY
 YSYK-KOL
 NARYN
 OSH
 BATKEN
 JALAL-ABAD
 TALAS

(4) Structure Soundness

Structure soundness can be selected by the input space which is indicated as No.4 in Figure 2-6. Tap the input space and structure soundness can be selected from the list shown in below. Evaluation method of that is described in “Volume II: Bridge Maintenance Manual”.

Good
Fair
Poor
Critical
Imminent

(5) Bridge No.

Bridge No. can be inputted directly by the input space which is indicated as No.5 in Figure 2-6.

(6) River/Stream Name

River/Stream name can be inputted directly by the input space which is indicated as No.6 in Figure 2-6.

(7) Road Category

Road category can be selected by the input space which is indicated as No.7 in Figure 2-6. Tap the input space and road category can be selected from the list shown in below.

International
National

(8) Construction Year

Construction year can be inputted directly by the input space which is indicated as No.8 in Figure 2-6.

(9) Road Name

Road name can be selected by the input space which is indicated as No.9 in Figure 2-6. Tap the input space and road category can be selected by the list shown in *Attachment-1*.

(10) Location (Km Post, Latitude, Longitude)

Km post can be inputted directly by the input space which is indicated as No.10 in Figure 2-6. Also, latitude and longitude can be inputted automatically by internal GPS of the tablet.

(11) Design Load

Design load can be inputted directly by the input space which is indicated as No.11 in Figure 2-6.

(12) Feature

Feature of the bridge can be selected by the input space which is indicated as No.12 in Figure 2-6. Tap the input space and structure soundness can be selected from the list shown in below.

Crossing River/Stream
Road Crossover
Railway Crossover

(13) Attachment (Water Pipe, Electric Cable, Communication Line etc.)

Attachment of the bridge such as water pipe, electric cable and communication line can be inputted directly by the input space which is indicated as No.13 in Figure 2-6.

(14) Bridge Length

Bridge length can be inputted directly by the input space which is indicated as No.14 in Figure 2-6.

(15) Road Width (Carriageway, Sidewalk)

Road width of carriageway and sidewalk can be inputted directly by the input space which is indicated as No.15 in Figure 2-6.

(16) Number of Span

Number of span can be inputted directly by the input space which is indicated as No.16 in Figure 2-6.

(17) Superstructure

The conditions of superstructure can be selected by the input space which is indicated as No.17 in Figure 2-6. The material, Structural Type-1 and Type-2 can be selected from the list shown in below. Also, number of girder and slab Number of span can be inputted directly by the input space.

Contents	Concrete	Girder Slab Box-Culvert	Simple Continuous
	Metal		
	Wood		
	Stone		
	Other		

(18) Substructure

The conditions of substructure can be selected by the input space which is indicated as No.18 in Figure 2-6. The material and Structural Type-1 can be selected from the list shown in below. Also, height and number of substructure can be inputted directly by the input space.

Item	Material	Structural Type 1
Contents	Concrete	Wall type
	Metal	Multi pile
	Wood	Single pier
	Stone	Frame
	Other	

(19) Accessory

The conditions of bearing, expansion joint and bridge railing can be selected by the input space which is indicated as No.19 in Figure 2-6. They can be selected from the list shown in below.

Item	Bearing	Expansion Joint	Railing
Material	Concrete and Metal Concrete and Rubber Concrete Metal and Rubber Metal Rubber	Metal Rubber Buried	Metal Concrete Metal and Concrete Wood

(20) Overview Picture

When you tap the photo space. Camera function is executed automatically. After taking a photo, it is saved to the sheet automatically.

2.2.2 Inspection Sheet for Planned Inspection A

The format of Inspection Sheet is shown in Figure 2-7. Details of the input method for Bridge Passport Sheet are described as follows.

Инспекция моста
Bridge Inspection

Назад
Back

Печать
Print

УАД_ИИТ-
UAD_BNT

ДМУ_957-
DEP_957

НАРЫН-НАРЫН

Башкыс - Нарын - Торугарт_Боддок - Нарын - Торугарт

389*200

2018.05.22

1

№ <small>Photo №</small>	1
Элемент конструкции <small>Member</small>	2
Примечание <small>Comment</small>	3

№ <small>Photo №</small>	2
Элемент конструкции <small>Member</small>	
Примечание <small>Comment</small>	

№ <small>Photo №</small>	3
Элемент конструкции <small>Member</small>	
Примечание <small>Comment</small>	

№ <small>Photo №</small>	4
Элемент конструкции <small>Member</small>	
Примечание <small>Comment</small>	

№ <small>Photo №</small>	5
Элемент конструкции <small>Member</small>	
Примечание <small>Comment</small>	

№ <small>Photo №</small>	6
Элемент конструкции <small>Member</small>	
Примечание <small>Comment</small>	

Завершить
Finish

Figure 2-7 Inspection Sheet (1) of Bridge

(1) Move to Inspection Sheet (2)

Inspection Sheet (2) shown in Figure 2-8 can be displayed by the tapping the space which is indicated as No.1 in Figure 2-7. Main function of Inspection Sheet (2) is shown in Table 2-1.

Figure 2-8 Inspection Sheet (2) of Bridge

Table 2-1 Function of Inspection Sheet (2)

No.*	Function	Remarks
1	<u>Photo</u> Camera function is executed automatically. After taking a photo, it is saved to the sheet automatically.	
2	<u>Figure</u> The damage figure can be drawn by handwriting.	<i>See Figure 2-9</i>
3	<u>Member</u> Inspector name can be inputted manually.	
4	<u>Comment</u> Some comments can be inputted manually.	

* No. corresponds to the number described in Figure 2-8

The screenshot shows a software window with a light gray header bar containing the text "キャンセル 消去" (Cancel Delete) on the left and "承認" (Confirm) on the right. The main area is divided into two sections by a horizontal line. The upper section is a large rectangular area with a red dotted border, containing the text "Damage figure can be drawn by handwriting." in red. Inside this area, a hand-drawn black rectangle is visible. The lower section is a smaller rectangular area with a red dotted border, containing the text "ここに署名" (Sign here) in gray above the text "Signature can be written by handwriting." in red.

Figure 2-9 Damage Figure

(2) Structure Element

Structure element such as girder and slab can be inputted directly by the input space which is indicated as No.2 in Figure 2-7.

(3) Comment

Some comment regarding to the photo can be inputted directly by the input space which is indicated as No.3 in Figure 2-7.

Inspections of tunnels are carried out in the same as described above when carrying out inspections of bridges.

3 Database Operation

3.1 Bridge Database System (Data Browsing)

3.1.1 National Map

After tapping the button of “Select bridge by PLUAD/UAD” from the Main Menu shown in Figure 1-2, a national map is displayed as shown in Figure 3-1.

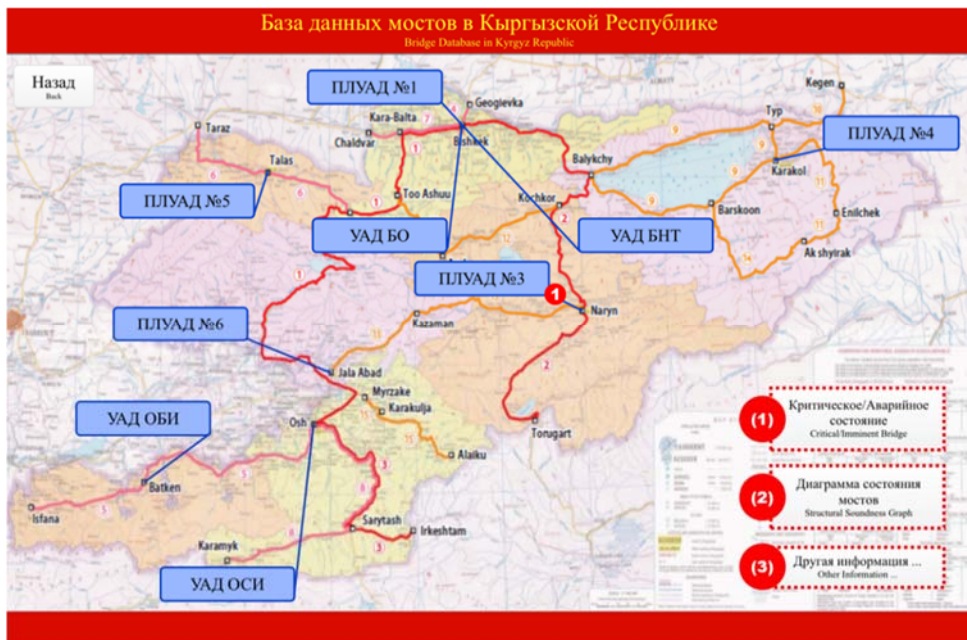


Figure 3-1 National Map

(1) Imminent and Critical Bridge

The list of bridges evaluated “imminent” and “critical” shown in Figure 3-2 can be browsed by the “Critical/Imminent Bridge” button indicated as (1) in Figure 3-1.

Structural Soundness of "Critical" or "Imminent"

Критическое-Critical Аварийное-Imminent
 Select "Imminent" or "Critical"

Состояние конструкции " Аварийное-Imminent "

Structural Soundness

ПЛУАД_УАД PLUAD_UAD	ДЭП DEP	Название дороги Route Name	Категория дороги Road Class	Местоположение, км Location
ПЛУАД_4-PLUAD_4	ДЭП_11-DEP_11	Каракөл - Барскоон - в/п.Эңилчек - ур.Акшырак_Karakol - Barskoon - Enilchek - Akshytrak	Международного значения-International	19+950 Паспорт
ПЛУАД_4-PLUAD_4	ДЭП_3-DEP_3	Барскоон - Ак-Шырак_Barskoon - Ak-Shytrak	Международного значения-International	394+450 Паспорт
ПЛУАД_5-PLUAD_5	ДЭП_47-DEP_47	Тараз - Талас - Суусамыр_Taraz - Talas - Suusamyr	Международного значения-International	82+000 Паспорт
УАД_БО-UAD_BO	ДЭП_26-DEP_26	Мырзаке - Каракулжа - Алаику_Myrzake - Karakulja - Alaiku	Международного значения-International	28+300 Паспорт
УАД_БО-UAD_BO	ДЭП_26-DEP_26	Мырзаке - Каракулжа - Алаику_Myrzake - Karakulja - Alaiku	Международного значения-International	74+815 Паспорт
УАД_БО-UAD_BO	ДЭП_26-DEP_26	Мырзаке - Каракулжа - Алаику_Myrzake - Karakulja - Alaiku	Международного значения-International	86+440 Паспорт
УАД_ОБИ-UAD_OBI	ДЭП_13-DEP_13	Ош - Баткен - Ифана_Osh - Batken - Ifana	Международного значения-International	344+000 Паспорт
УАД_ОСИ-UAD_OSI	ДЭП_37-DEP_37	Ош - Баткен - Ифана_Osh - Batken - Ifana	Международного значения-International	63+500 Паспорт
ПЛУАД_1-PLUAD_1	ДЭП_28-DEP_28	Петровка - Нарзаныи источники_Petrovka - Narzan spring	Государственного значения-National	43+600 Паспорт
ПЛУАД_1-PLUAD_1	ДЭП_40-DEP_40	Петровка - Бештерек_Petrovka - Beshterek	Государственного значения-National	3+500 Паспорт

Figure 3-2 Bridge List of Imminent and Critical

(2) Diagram for Status of Bridge Structure Soundness

The diagram for the status of bridge structure soundness shown in Figure 3-3 can be browsed by tapping the “Structural Soundness Graph” button indicated as (2) in Figure 3-1. PLUAD/UAD can be selected by user from the button indicated as No.1 in Figure 3-3.

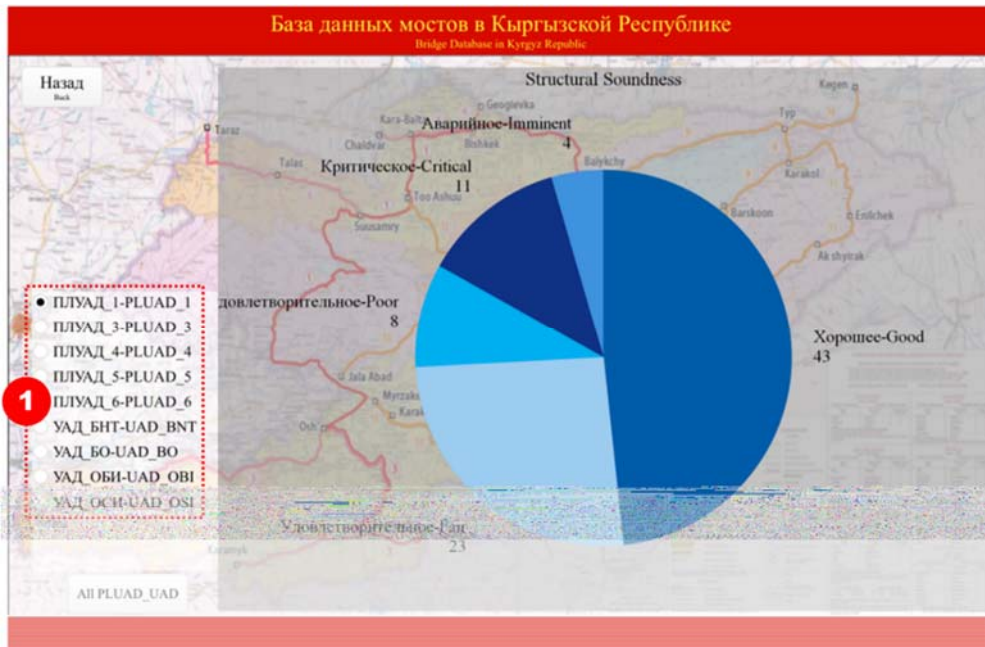


Figure 3-3 Diagram for Status of Bridge Structure Soundness

(3) Other Information

Other information regarding to bridges can be browsed by the buttons indicated as No.1 to No.5 in Figure 3-3. Description of them is shown in Table 3-1.

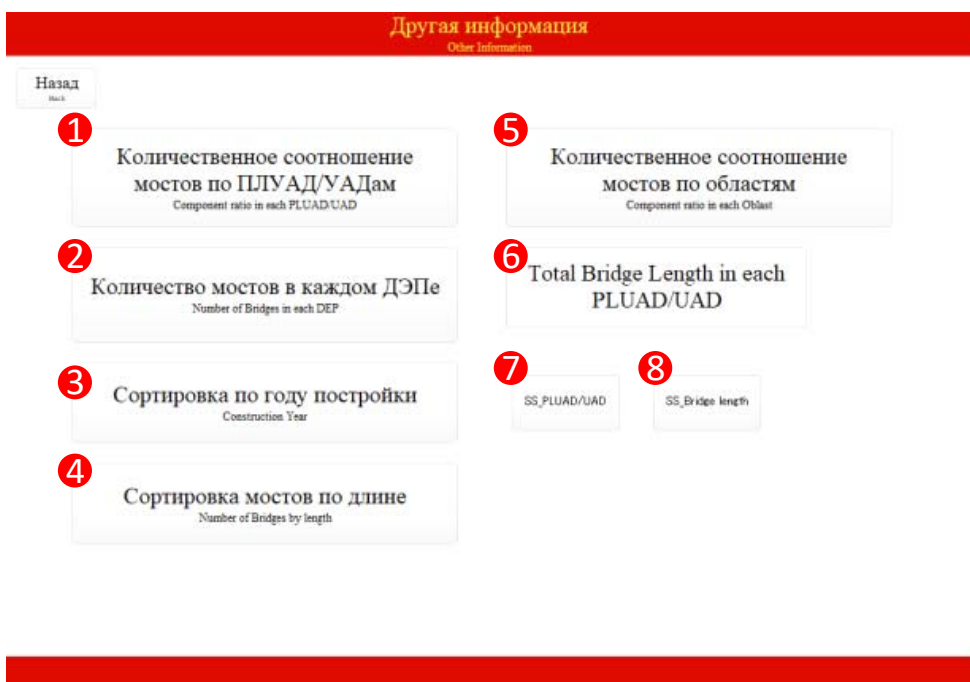


Figure 3-4 Other Information Menu

Table 3-1 Description of Bridge Information

No.*	Description	Remarks
1	<u>Component Ratio in each PLUAD/UAD</u> The graph of bridge number by PLUAD/UAD can be browsed.	See Figure 3-5
2	<u>Number of Bridges in DEPs</u> The graph of bridge number by DEPs can be browsed.	See Figure 3-6
3	<u>Construction Year</u> The graph of bridge number by construction year can be browsed.	See Figure 3-7
4	<u>Number of Bridges by Length</u> The graph of bridge number by length can be browsed.	See Figure 3-8
5	<u>Component Ratio in each Oblast</u> The graph of bridge number by Oblast can be browsed.	See Figure 3-9
6	<u>Information about the lengths of bridges served by UAD / RO</u> The histogram showing the total length of bridges for each UAD / RO and their percentage ratio	See Figure 3-10
7-8	<u>The structural soundness of bridge in UAD / RO</u>	See Figure 3-11 Figure 3-12

* No. corresponds to the number described in Figure 3-4

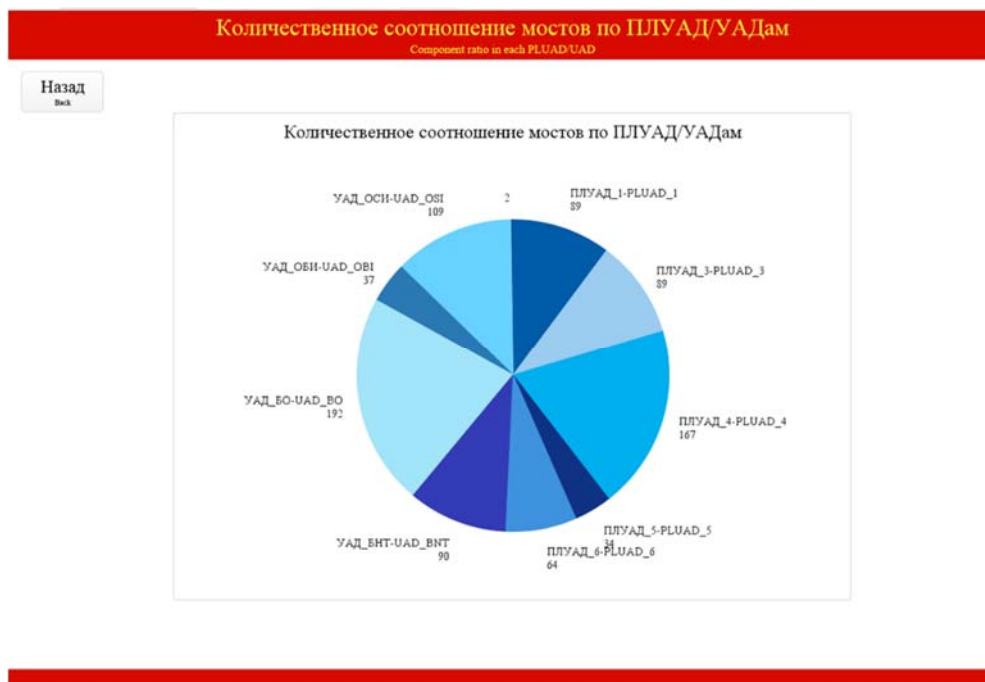


Figure 3-5 Graph of Bridge Number by PLUAD/UAD

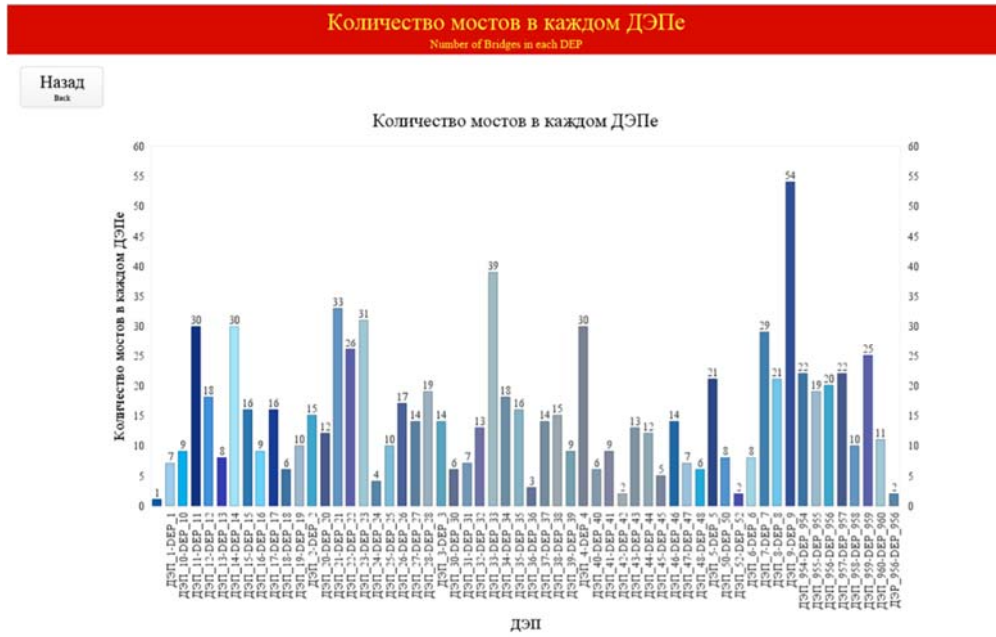


Figure 3-6 Graph of Bridge Number by DEPs

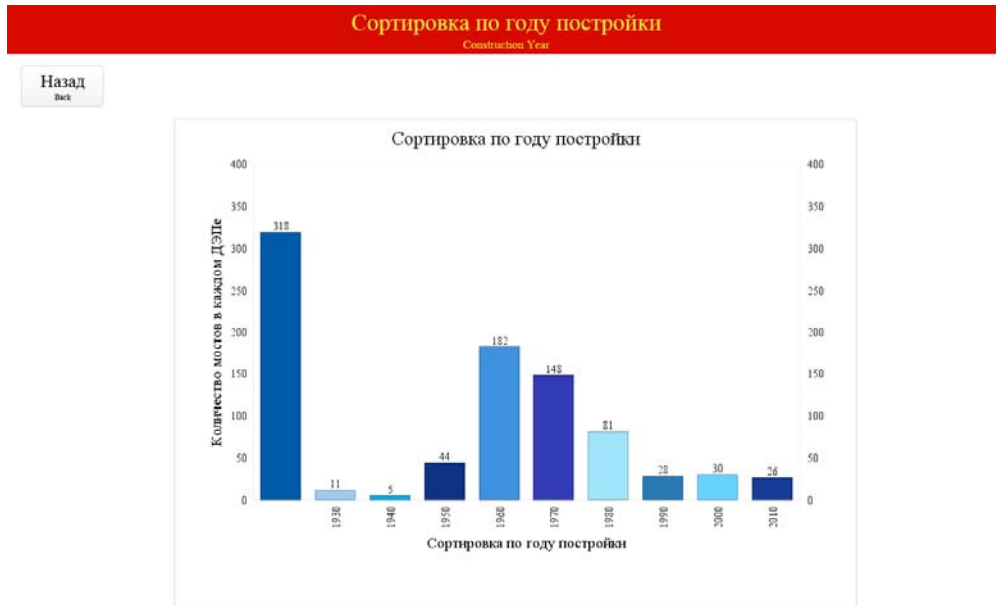


Figure 3-7 Graph of Bridge Number by Construction Year

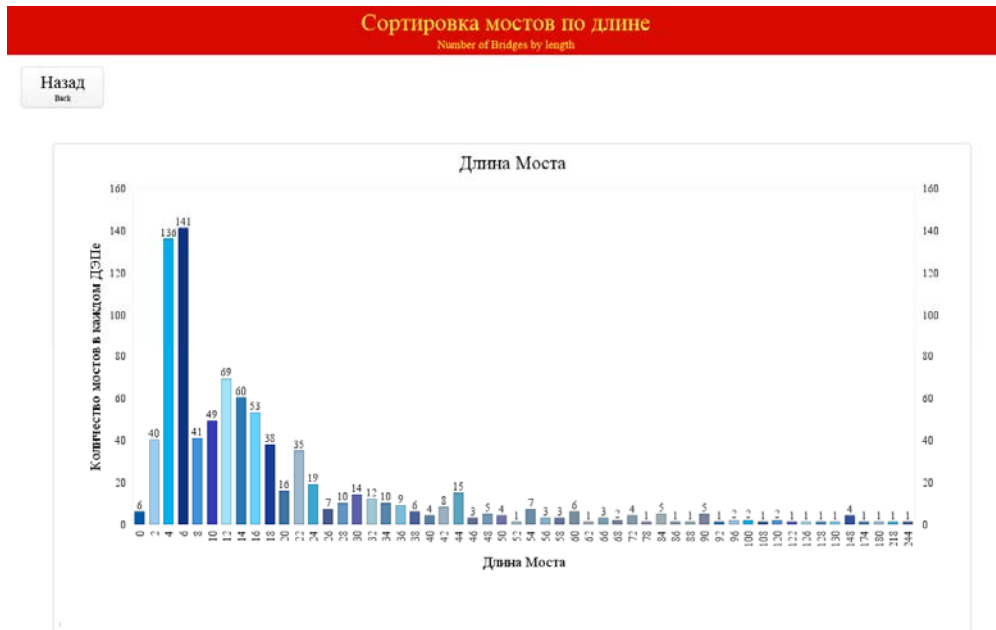


Figure 3-8 Graph of Bridge Number by Bridge Length

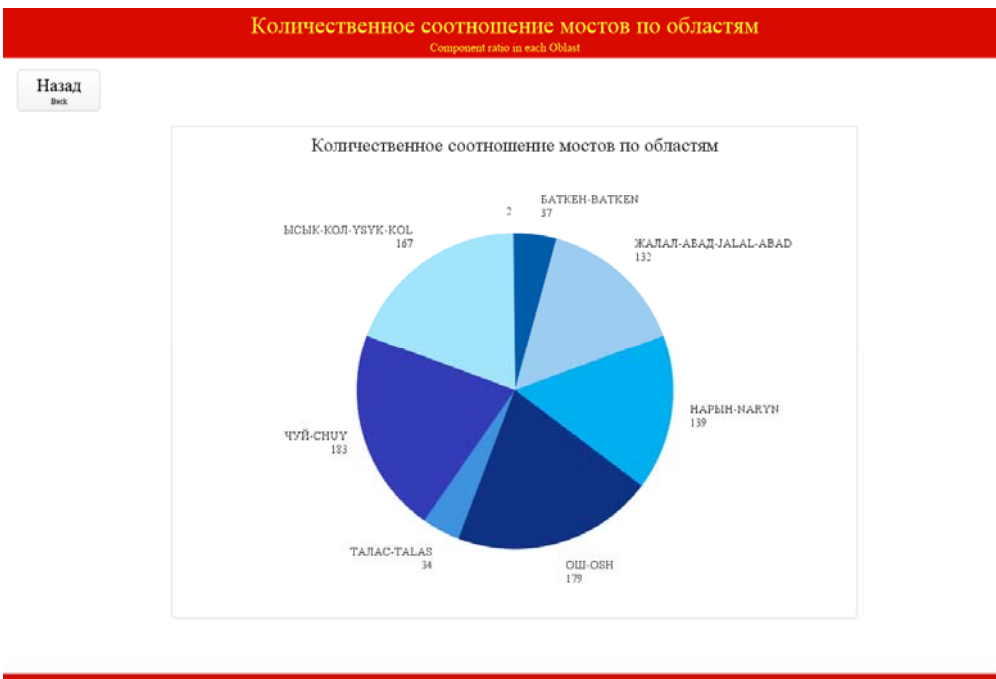


Figure 3-9 Graph of Bridge Number by Oblast

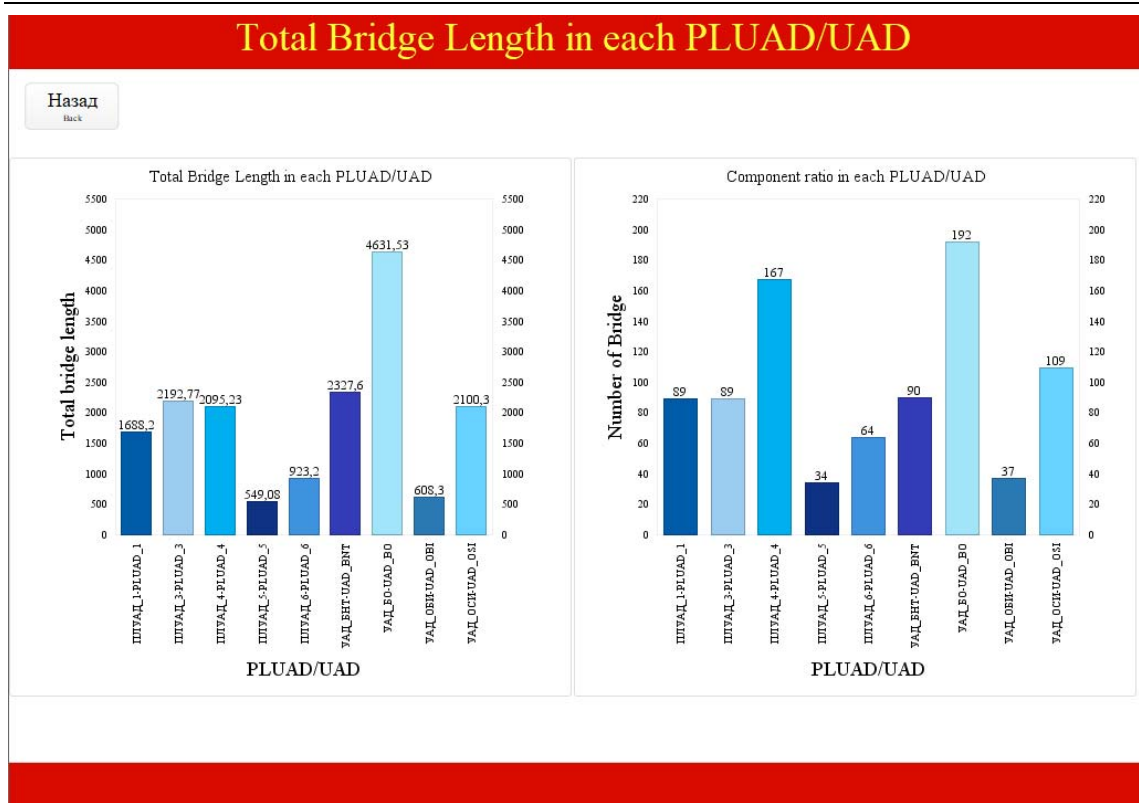


Figure 3-10 Graph of Bridge length served by UAD/RD

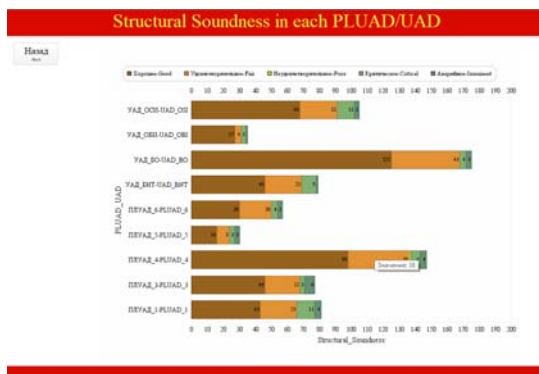


Figure 3-11 Diagrams "The structural soundness of bridges in UAD / RO"

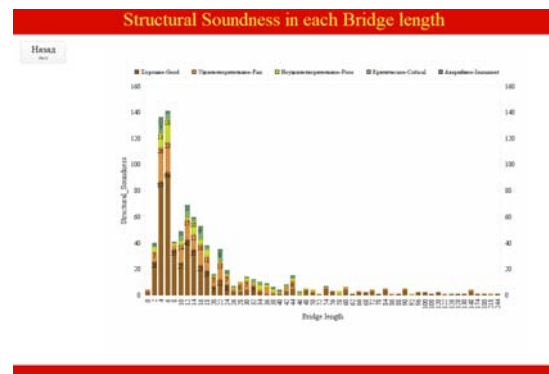


Figure 3-12 Diagrams "The structural soundness of bridge by length"

3.1.2 DEPs Map

After tapping the button of PLUAD/UAD from national map, DEPs map is displayed as shown in Figure 3-13. The bridge list by soundness shown in Figure 3-14 can be browsed by the “Structural Soundness” button indicated as No.1 in Figure 3-14.

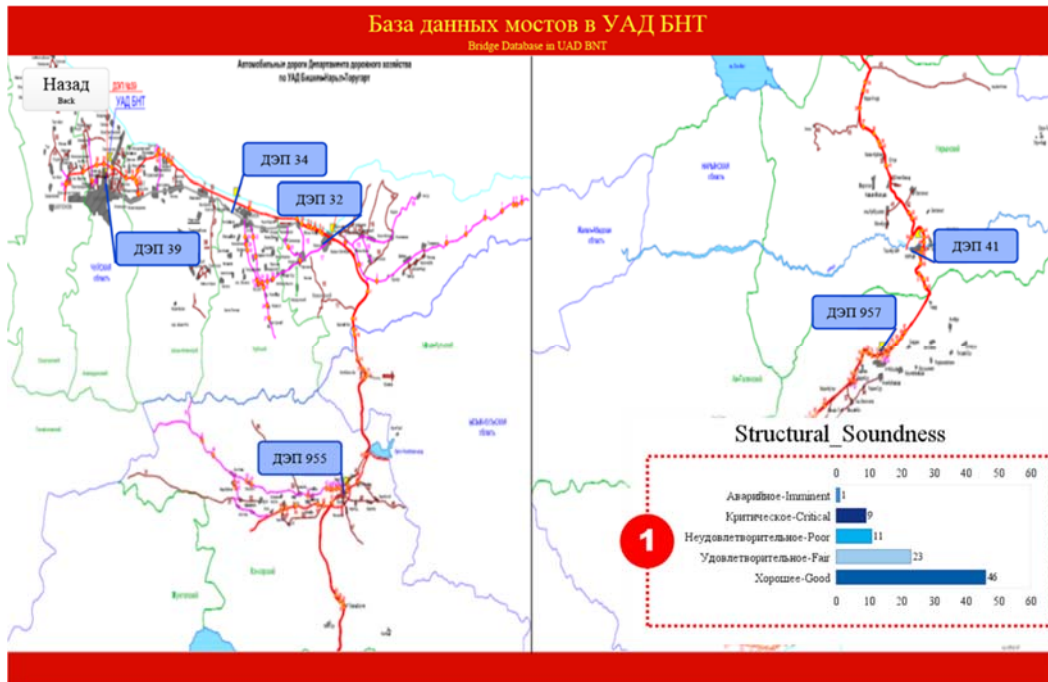


Figure 3-13 DEPs Map



Figure 3-14 Bridge List by Soundness

3.1.3 Bridge List of DEP

After tapping the button of DEP from DEPs map, the bridge list of DEP is displayed as shown in Figure 3-15. Also, the bridge passport sheet can be browsed by the button indicated as No.1 in Figure 3-15.

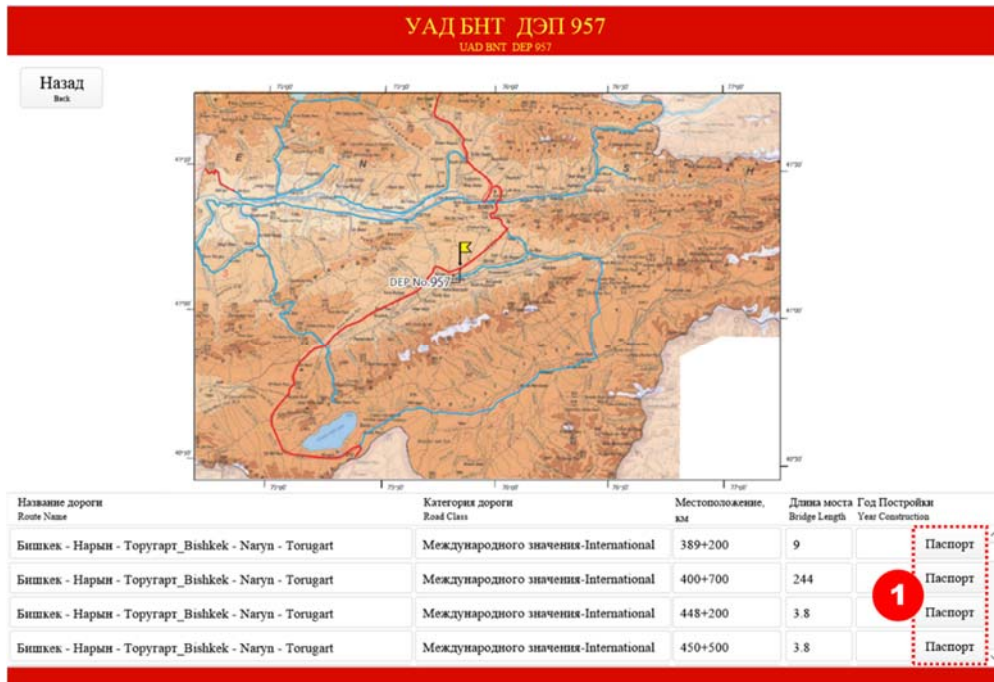


Figure 3-15 Bridge List of DEP

3.1.4 Bridge Inspection System

To start the bridge inspection, select the “Start Inspection” button indicated as No.1 in Figure 3-16. After tapping the button, the bridge inspection sheet is displayed and Planned Inspection A can be carried out on the site using iPad (iPad version).

Система базы данных мостов и тоннелей в Кыргызской Республике
 Database System of Bridge and Tunnel in Kyrgyz Republic

Modify data

Назад
Back

1
Начать инспекцию
Start Inspection

Печать/PDF
Print / PDF

ПУАД_УАД PUAD_UAD	УАД_БНТ-УАД_БНТ	ДЭП DEP	ДЭП_957-DEP_957
Область Oblast	НАРЫН-NARYN	Состояние конструкции Structural Condition	Хорошее-Good

№ моста Bridge No	1	Название реки/водотока River Stream Name	Категория дороги Road Class	Международного значения International	Год Постройки Year Construction			
Название дороги Road Name	Башкак - Нарын - Торугарт_Bashkek - Naryn - Torugart		Местоположение, км Location	389+200	В.Д. N	75.8519444	С.Ш. N	41.2008333
Расчетная нагрузка Design Load	НГ-80		Особенности Features	Особенности Attentions				

[Габариты [Ед.изм.: м]]
[Each Dimension [Unit: m]]

длина моста Bridge Length	9	Ширина проезжей части Roadway Width	10	Ширина тротуара Sidewalk Width		Кол. Пролетов No. of Spans	1
------------------------------	---	--	----	-----------------------------------	--	-------------------------------	---

[Материал / Тип конструкции]
[Material / Structural Type]


Составная часть Element	Материал Material	Конструкция 1 Structural Type 1	Конструкция 2 Structural Type 2	Конструкция 3 Structural Type 3	Количество плит No. of Girders
Пролетное строение1 Span Structure1	Бетон-Concrete	Плита-Slab	Простая-Simple		
Пролетное строение2 Span Structure2					
Пролетное строение3 Span Structure3					

Опорное строение Substructure	Бетон-Concrete	Одна опора-Single Pier	Высота опорного строения (м) Height of Substructure	5	Количество опор No. of Substructure	2
----------------------------------	----------------	------------------------	--	---	--	---


[Другие элементы]
[Other parts]

пункт Item	Наличие With or Without	Материал Material	пункт Item	Наличие With or Without	Материал Material	пункт Item	Наличие With or Without	Материал Material
Опорная подушка Bearing	Нет-Without		Температурный шов Expansion Joint	Есть-With	Закрытый шов- Covered	Перила Railing	Есть-With	Металл-Metal


Общий вид
Overview



Поверхность
Surface



Нижняя часть
Underface






Figure 3-16 Start Button of Inspection

3.2 Tunnel Database System (Data Browsing)

3.2.1 Location Map

After tapping the button of “Tunnel Selection” from the Main Menu shown in Figure 1-2, a location map of the tunnel is displayed as shown in Figure 3-17. Passport data of the tunnel can be browsed on the location map by tapping the tunnel name.



Figure 3-17 Location Map of Tunnel

New tunnel inspection can be started by pressing the “Start inspection” button. On the “Passport of the tunnel” screen, indicated by # 1 in Figure 3-18. After clicking this button, a form for conducting a tunnel inspection opens.

Figure 3-19 Tunnel passport sheet