

CREATION OF A DATABASE WHEN DRAWING UP A MAP OF THE EVACUATION AREAS OF THE CITY OF URGENCH

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Abstract: This article presents the stages of creating a database when drawing up an evacuation map of the city of Urgench. depending on the purpose of the map and its tasks, it is necessary to collect the data corresponding to it and create a database based on them.

Keywords: GIS, OSM (Open Street Map), databases, geospatial data, shape files, vector files, remote sensing, photogrammetry, digitization.

Introduction: Geographic information system (**GIS**) consists of integrated computer hardware and software that store, manage, analyze, edit, output, and visualize geographic data.[1][2] Much of this often happens within a spatial database, however, this is not essential to meet the definition of a GIS. [1] In a broader sense, one may consider such a system also to include human users and support staff, procedures and workflows, the body of knowledge of relevant concepts and methods, and institutional organizations.

A database- (database) is a data set up under specific rules and following the general principles of imaging, storage and management. The rules for storing data in the database are organized on the basis of centralized management, following safety standards and integrity. In such a system, the overlap and repetition of information is obtained.[3]

A spatial database is a general-purpose database (usually a relational database) that has been enhanced to include spatial data that represents objects defined in a geometric space, along with tools for querying and analyzing such data. Most spatial databases allow the representation of simple geometric objects such as points, lines and polygons.[4]

The database is of great importance when performing analyzes in GIS . The degree of accuracy of the data and their sources include many factors, such as the orderly storage of the data.

In GIS, one of the much used data is geospatial data, and this in its place also forms the basis of GIS. Geospatial information contains coordinates, and the system can read the data through these coordinates. There are many types of data that include them in the database spatial coordinates occupy a fundamental place in processing.

The main part: collecting information, in turn, involves several stages of work, such as other processes . When planning begins the first phase of these processes, steps such as preparation, digitization (digitization, survey result entry, scanning, photogrammetry), editing and quality improvement will continue to progress it, and data evaluation will end.

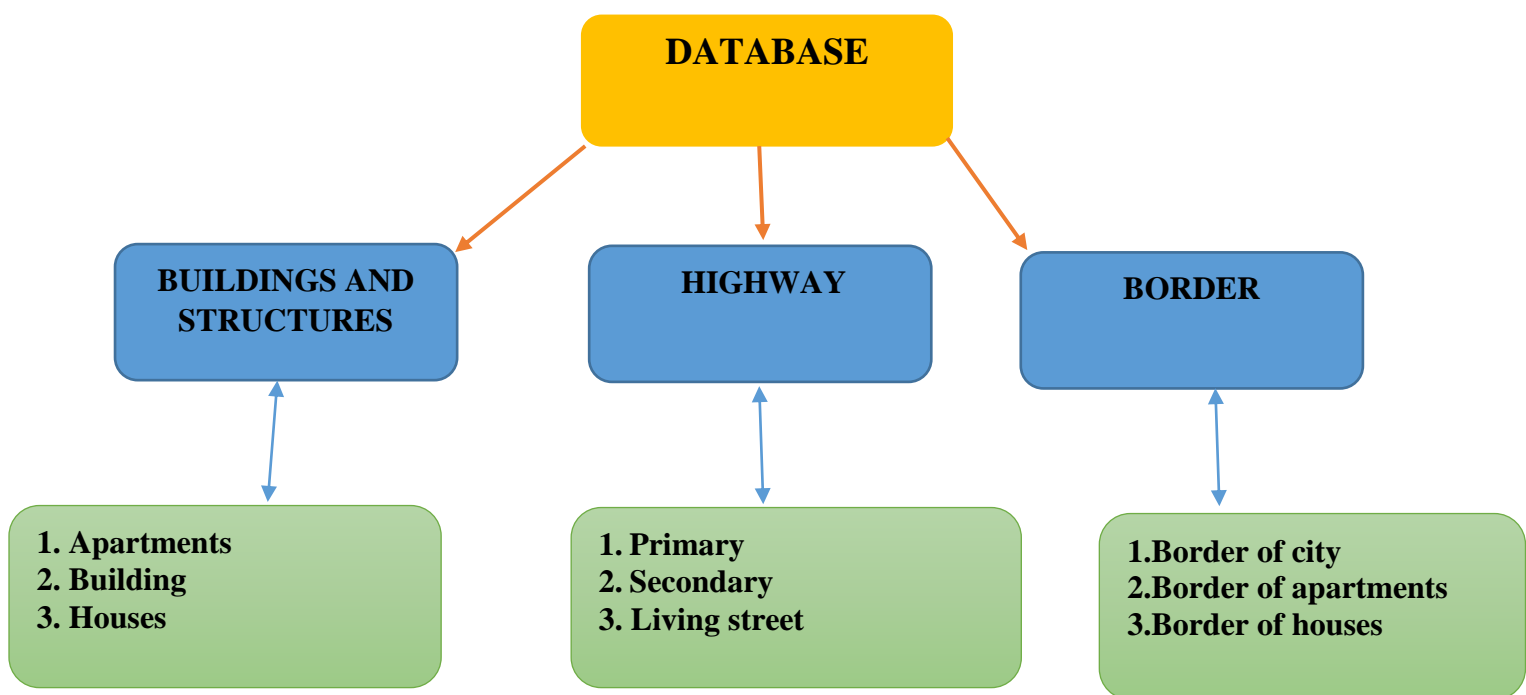


Figure 1. Database structure

When creating a database, we can first collect the vector data of the city of Urgench or create it by digitization. In digitization, existing raster maps can be converted to vector format in GIS applications or drawn in GIS applications via “Google Earth” and remote sensing data. We can get urban vector data from online sites where there is a wide variety of geospatial data.

These are 1. <https://www.diva-gis.org/> 2. <https://extract.bbbike.org>

3. <https://www.gpsvisualizer.com/>, there are also download options from free internet sites like this.

Through these sites, there is an opportunity to download free geographic data, that is, shape files. The Shape files (.shp) contains geometry data. The geometry of a given property holds as a set of vector coordinates. The data consists of data structures as follows. The variable-length record contents depend on the shape type, which must be either the shape type given in the file header or Null. The following are the possible shape types: (Table 1).[5]

Value	Shape type	Fields
0	Null shape	None
1	Point	X, Y
3	Polyline	MBR, Number of parts, Number of points, Parts, Points
5	Polygon	MBR, Number of parts, Number of points, Parts, Points

Open Street Map (OSM) data is of great importance in the collection of vector data in this research work. This allows most objects in the city to be downloaded vector files.

OSM data can also be downloaded from the QGIS application. It will be necessary to process and organize the downloaded data. Vector files outside the region boundary that are originally being described are scraped through the clip function.(Figure 2)

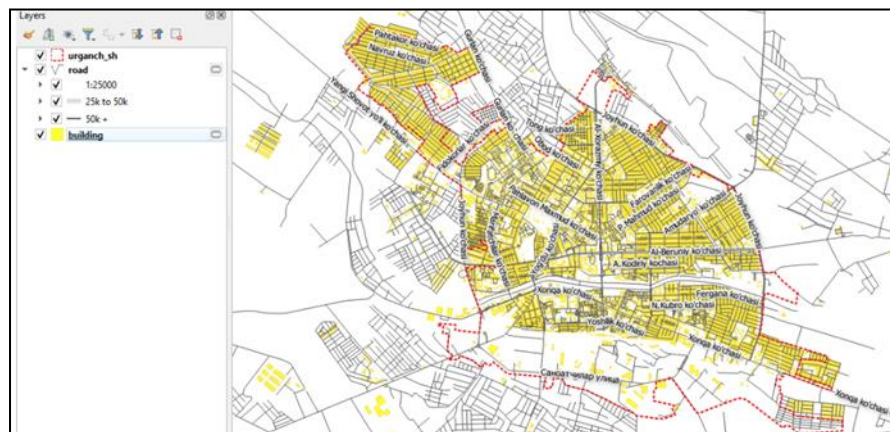


Figure 2. OSM data downloaded in the QGIS .

This vector needs to organize the attribute tables of files and generalize them according to the purpose of the map. In this case, it will be necessary to delete those that are in addition to the information of the type mentioned in the database and place them in order.(Figure 3)

	full_id	osm_id	osm_type	highway	name	surface	maxspeed	ref
1	w110176306	110176306	way	living_street	Termiz ko'chasi	NULL	NULL	NULL
2	w110176360	110176360	way	living_street	Sohil ko'chasi	NULL	NULL	NULL
3	w110266759	110266759	way	living_street	Feruz ko'chasi	NULL	NULL	NULL
4	w110266761	110266761	way	living_street	NULL	NULL	NULL	NULL
5	w110266765	110266765	way	living_street	Mustakillik ko'chasi	NULL	NULL	NULL
6	w110266769	110266769	way	living_street	J.Manguberdi kochasi	NULL	NULL	NULL
7	w110266772	110266772	way	living_street	Uzbekiston ovozi ko'chasi	NULL	NULL	NULL
8	w110266774	110266774	way	living_street	J.Manguberdi kochasi 1 yulak	NULL	NULL	NULL
9	w110266775	110266775	way	living_street	3hgU Umid ko'chasi	NULL	NULL	NULL
10	w110266777	110266777	way	living_street	3hgU Umid ko'chasi	NULL	NULL	NULL
11	w110266778	110266778	way	living_street	Munis Xorazmiy ko'chasi	NULL	NULL	NULL
12	w167429839	167429839	way	living_street	Muruvat ko'chasi	NULL	NULL	NULL
13	w167429841	167429841	way	living_street	Tinchlik ko'chasi	NULL	NULL	NULL
14	w167429842	167429842	way	living_street	Afrosiyob ko'chasi	NULL	NULL	NULL
15	w167429843	167429843	way	living_street	Iftihor ko'chasi	NULL	NULL	NULL
16	w167429846	167429846	way	living_street	Mirishkor ko'chasi	NULL	NULL	NULL
17	w173120334	173120334	way	living_street	3hgU Umid ko'chasi	NULL	NULL	NULL
18	w173120335	173120335	way	living_street	Jambul ko'chasi	NULL	NULL	NULL
19	w173120338	173120338	way	living_street	Pushkini ko'chasi	NULL	NULL	NULL
20	w173120342	173120342	way	living_street	Gujumzor ko'chasi 2 yulak	NULL	NULL	NULL

Figure 3. Attributive table of a highway vector file

In addition, open data can also be obtained from the relevant offices and organizations. The “Google Earth” application is also used to verify the accuracy of the data. In this case, it is necessary to measure the correctness and distance of the location of the downloaded building. Again this information can be learned by measuring the degree of accuracy out of place and also through the results of observation.



Figure 4. Google Earth

Thus, the form files in the database were ready. the accuracy of the shape files in it has been compared to Google earth. shape file feature was data processed and stored in order. Other text, table, rastr data are also processed by rule. research data is divided into types and stored in separate volumes. All form files must be stored together in a folder created for research.

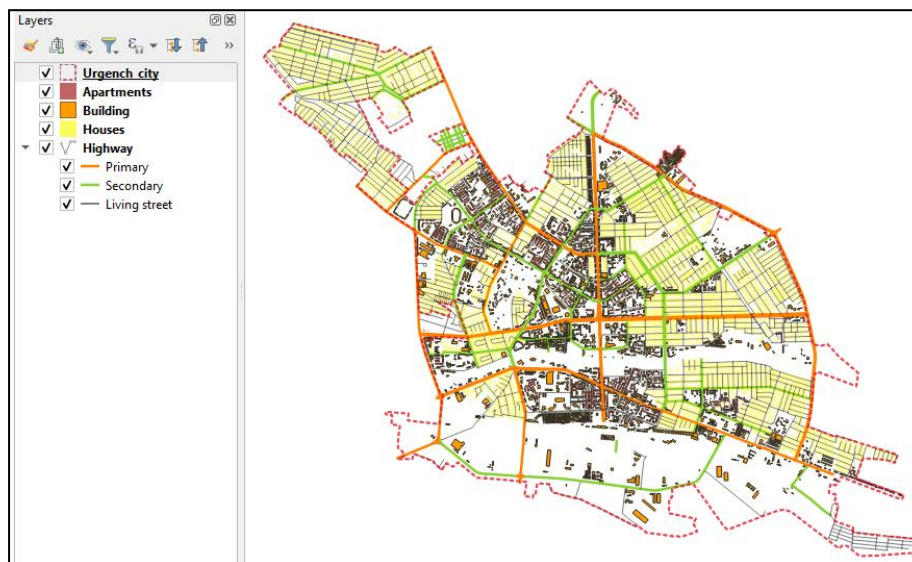


Figure 5.
Ready-made
shape files

Conclusion. When creating a database, the purpose and function of the map are considered important. There are different ways to collect data, the correct method is selected based on the content of the map being created. The choice of this method is made based on the theoretical and practical knowledge and experience of the cartographer. It is planned to develop maps of “evacuation area”, continuing this research in the future.

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