

BASIC PRINCIPLES OF URBAN DEVELOPMENT

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Annotation. This article analyzes the basic principles of urban development. It will consider ways of sustainable development of cities based on such factors as modern urbanization processes, infrastructure, ecology, social environment, and economic efficiency. Planning, the transport system, the quality of the living environment, and taking into account the needs of the population are presented as important conditions for urban development. The article also highlights advanced principles that can be applied in the cities of Uzbekistan based on foreign experience.

Keywords: urban planning, sustainable development, urbanization, infrastructure, planning, ecology, transport system

The layout of city street networks is determined by the placement of industrial enterprises, residential areas, public buildings, stations, terminals, as well as intersections of suburban roads.

The planning of old cities has historically emerged (formed) under the influence of social, topographical, and climatic conditions. When planning new cities, the basic principle of creating the best conveniences for the population is taken into account. The planning of new cities, as well as the development and reconstruction of existing cities, is based on a comprehensive study of the placement of industrial and transport links, the selection of the most suitable plots for residential areas, and the creation of green areas.

Several urban planning systems are distinguished: radial, radial-ring, rectangular, and mixed (Figure 1.7).

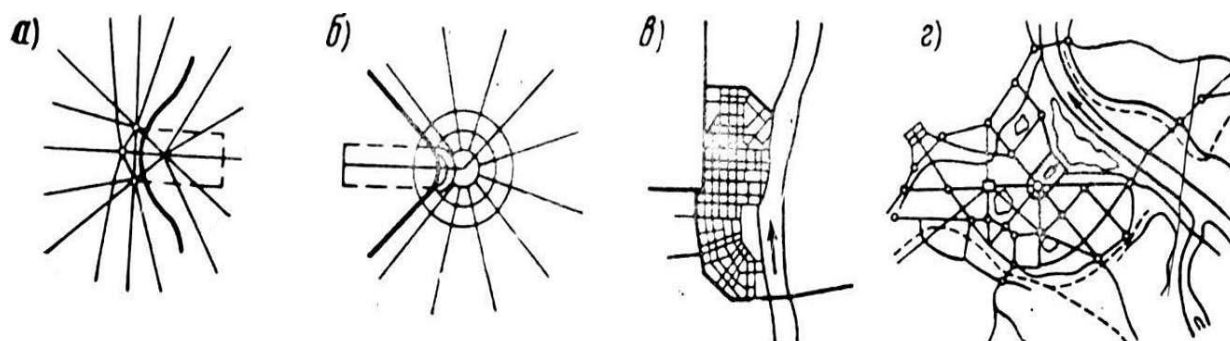


Figure 1. City planning system: *a*-radial; *b*-radial-ring; *c*-rectangular; *d*-mixed.

Many ancient cities-fortresses are characterized by a radial-ring planning system. An example of such planning is the ancient city of Fergana. Cities, founded in the 17th-18th centuries, usually have a rectangular layout.

In a mixed planning system, regular rectangular planning is combined with diagonal street-beam laying, which disrupts some uniformity in rectangular planning and creates a perspective of beautiful squares and streets.

When designing new cities, the street network plan is determined based on the intended directions of traffic flows in the city. By analyzing data on the location of production enterprises, institutions, railway stations, ports, and public places, the direction and amount of cargo flows are determined. First of all, the main highways along the shortest route are designed. The remaining streets are located as auxiliary roads to the main highways, provided that residential areas are connected by convenient transport links with industrial enterprises, institutions, railway stations, etc.

The classification of city streets is based on the consideration of their features (signs), i.e., the nature of buildings, the intensity and types of movement in the future, the level of development of subsurface management, the position of streets in the plan of the street network and in relation to the entrance of suburban roads. Table 1.1 shows the classification of city streets adopted in the design standards (SHNK. 0.07.01-03).

In conditions of complex terrain or reconstruction, it is possible to reduce the calculated speed of movement and obtain a description of the plan and cross-section of city streets and roads according to Table 1.3.

When calculating the intensity of various vehicle flows, it is necessary to reduce them to one vehicle with the following coefficients:

Passenger cars -1
Trucks, load capacity, t:
up to 2.0 -1.5
2.0 to 5 - 2.0
2.0 to 8 -2.5
More than 8 -3.5
road trains -KMK 2.05.02-95
In accordance with the "Roads":
buses -2.5
trolleybuses -3.0
coupled buses
and trams -4.0
motorcycles, mopeds -0.5

Table 1.1

Street and road category	Main importance of streets and roads	Design speed, km/h
1.	2.	3.
High-speed roads	Express transport communication between the largest or largest city districts and between cities and other settlements of a group settlement system, passing through intersections with different road levels	120.
Main streets and roads: citywide	Continuous traffic is transport communication between populated industrial districts and public centers, as well as between highways within the city limits, passing through intersections with different levels of transport.	100.
Iqmain roadsg'connecting economic, administrative, industrial, and cultural centersqof the republic or regiono'of the city	Transport communication between populated industrial districts and public centers within the controlled traffic-urban boundary, as well as between continuously running highways, roads built at intersections with other streets at the same level	80.
District-level	Construction of transport links at the boundaries of the district and at intersections at the same level with main streets of citywide significance and other streets	80.
Truck roads	Transportation of industrial and construction cargo outside residential buildings. Construction of intersecting roads at the same level as other roads between industrial zones and the city's consumer-warehouse zones	80.
Local streets and roads: residential streets	Transport (public transport is not allowed) and pedestrian streets connecting residential areas and groups of residential buildings with main streets of district significance	60.
roads of industrial and consumer-warehouse districts	Transportation of industrial and construction goods within the boundaries of the district, construction of intersecting roads at the same level with other streets and roads, ensuring connection with freight roads	60.
pedestrian streets and roads	Pedestrian streets and roads leading to workplaces, service establishments and enterprises, recreation areas and public transport stops	60.

rural streets	Transport links connecting public centers, institutions and service enterprises, as well as villages within the populated area	60.
rural roads	Transport communication between the settlement zone and industrial zones, industrial and consumer-warehouse zones, as well as outside these zones	60.
Passages	Transport communication within the boundaries of microdistricts	30.

The width of main streets of citywide significance is taken as 75...60 m between red lines, and for main streets of district significance - 35 m. The width of streets where residential buildings are located is determined by the number of floors (height) of the buildings: in the case of multi-story buildings - 25 m, in the case of low-rise buildings - 15 m.

Table 1.2

Street category	Calculated movement speed, km/h	Lane width, m	Bandwidth	Maximum width in red lines, m	Maximum sidewalk width, m	Minimum radius of curvature of the plan, m	Maximum longitudinal slope, %	Minimum radii of vertical curves, m	
								Conve x	concav e
I. Main streets of citywide significance: continuous motion	100.	3.75	6-8	-	4.5	500	50.	6,000	1,500
regulating action	80.	3.75	4-8	60.	4.5	400	50.	6,000	1,500
II. Main streets of district significance	60.	3.75	3-4.	45.	3.0	250	60.	4,000	1000
III. Streets of local importance: in housing construction	40.	3.75	2-3	25.	2.25	125.	80.	500	250
in production and utility-warehouse zones	60.	3.75	2-4	35.	1.5	250	60.	4,000	1000

Table 1.3

Street category	Harakat km/h Lane width, m	Bandwidth	Maximum width in red lines, m	Maximum longitudinal slope, %	Minimum radii of vertical curves, m	Convex	
						concave	I. Main streets of citywide importance
continuous motion regulating action							
II. Main streets of district significance	60.	3.5	4-8	250	60.	4,000	1000
III. Streets of local importance:	60.	3.5	4-8	125.	60.	2000	500
in housing construction	40.	3.5	2-4	50.	70.	1000	250
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in production and utility- warehouse zones	40.	3.5	2-3	125.	80.	500	250
	40.	3.5	2-4	50.	70.	500	250

The street layout is determined by the main layout in accordance with the city plan. The main elements of a street are: the roadway for traffic, the roadway axis. The axis of the roadway is mainly directed towards the street axis. However, urban conditions and planning determine the design of urban roads not as straight lines, but as broken lines. Internal circular arcs are designed for the convenience and safety of vehicle movement.

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