

PN-ACC-551
97801
Kev's ? - 54

THE UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT
PROJECT

LAND USE REGULATORY SYSTEM (ZONING)

ISSUES OF PLANNING AND
SUBDIVISION OF URBAN
LAND

Moscow
1997

Authors

T Afanasyeva, Ph D in Arch Land Use Project
O Chlenova, Ph D in Arch Land Use Project

This Manual was developed as part of the Land Use Regulatory System (Zoning) Project. The Project was funded by the United States Agency for International Development and implemented by personnel from Planning and Development Collaborative International, Inc (PADCO), the Urban Institute, the Institute for Urban Economics, and the Institute for a Law-Based Economy (ILBE) in the cities of Irkutsk, Kazan, Novgorod, Pushkin, Samara, St Petersburg, Tver, and Vyborg.

In addition to this Manual, the Project published copies of the Zoning Ordinances for Kazan, Samara, and Vyborg and special studies on the following issues: *The Development Process on Leased Land, Preservation and Development of Historical Buildings and Historical Areas, Interjurisdictional Land Issues, Servitudes, Reservation of Land for Future Public Needs, and Environmental Protection and Land Use Regulation*. The Project also published a periodic newsletter addressing land use issues and a training brochure.

Copies of these materials and additional information on zoning and land use may be obtained from the following organizations and individuals:

PADCO Inc, suite 1126, 15 ul Chayanova, building 5, Moscow, 125267

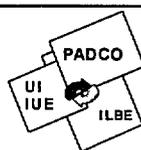
Tel (095) 973-4045, Fax 973-4044

Library of the Institute for Urban Economics, suite 126, 19 Prospect Mira, Moscow, 129010 Tel (095) 971-1778

T Afanasyeva Tel (095) 258-3570

If you have any questions or suggestions please contact the Land Use Project Chief of Party

Mr L Patterson
Suite 612
69 Prospect Mira
Moscow 129110
Tel (095) 755-9406
Fax (095) 755-9407
e-mail
landuse@glas.apc.org



HOUSING REFORM PROJECT
Land Use Regulatory System (Zoning)
United States Agency for International Development

CONTENTS

EXECUTIVE SUMMARY	4
INTRODUCTION	7
PART 1 URBAN DEVELOPMENT	9
1 1 Problems of urban development	9
1 1 1 Law and the city master plan	9
1 1 2 What is the difference between urban development plans of the soviet period and urban development plans created under market conditions?	10
1 1 3 What are the city tasks in the process of implementation of urban development plans?	12
1 2 The problems that cities come across when they organize investment process	13
1 2 1 Grounds for decision-making by the city authorities and the process of planning and re-organization of urban land	13
1 2 2 Reservation of land	14
1 2 3 Preparation of municipal (state) land for its conveyance to private persons	16
1 2 4 "City - Investor" agreement on working out urban development projects	17
PART 2 APPROACHES TO RE-ORGANIZATION OF URBAN AREAS IN RUSSIAN CITIES	18
2 1 Analysis of modern condition of cities	18
2 1 1 Historic districts of the old city (A-type)	19
2 1 2 Blocks of the 20s-50s (B-type)	21
2 1 3 Micro-rayons of the 60s-80s (C-, D-, E-types)	23
2 1 4 Wooden "estate" residential districts (F-type)	24
PART 3 SUBDIVISION AS PART OF PLANNING ACTIVITY	26
3 1 About subdivision of urban land	26
3 1 1 What is subdivision	26
3 1 2 Typical tasks of subdivision	27
3 1 3 Land subdivision regulations used in foreign countries	27
3 1 4 Are land subdivision regulations principally new for Russian practice?	28

3 2	What is the process of land subdivision?	30
3 2 1	Answers to some questions	30
3 2 2	Approval of a subdivision plan in the USA	32
3 2 3	Transformation of the existing procedure for approval of a subdivision project in Russian practice	33
PART 4 ZONING STANDARDS		39
4 1	Methods of and approaches to establishment of zoning standards	39
4 1 1	Methods of regulating density of residential development	41
4 1 2	Principles of establishing parcel parameters	43
4 1 2 1	Parcel area	43
4 1 2 2	Parcel proportions	44
4 1 2 3	Building setbacks	45
4 1 3	Parking	46
4 2	Recommended standards for residential zones	55
PART 5 THE FIRST EXPERIENCE OF SUBDIVISION OF URBAN LAND		59
5 1	Analysis of proposals for land subdivision applied in the process of reorganization of residential districts	59
5 1 1	Novgorod Block 15 and micro-rayon 7	60
5 1 2	Tver District of "Krasnaya Sloboda"	64
5 2	Analysis of project proposals for subdivision of vacant land	72
5 2 1	Novgorod Pskovski residential district	72
CONCLUSIONS		75
BASIC TERMS AND DEFINITIONS		77
LIST OF THE LITERATURE USED		80
APPENDIX		82

Executive Summary

Importance of the subject

In foreign cities, like in the pre-revolution Russian cities, a land parcel (with all established norms and restrictions on its use and alteration) is considered a real property unit (land unit). After private ownership was abolished in 1917, land parcels, instead of being units of property right, turned to be parcels serving the buildings located on them. The planning and development acts and, in particular, the city Master Plan, have become the basic and determining documents in the process of urban land use. A new concept appeared - land management. A specific feature of land management is that it is based on planning of settlements, in accordance with which urban land is allocated, taken or registered. Thus, having been excluded from the land law to a separate branch, the planning and development acts became the only legal documents regulating urban land use, and the concept of subdivision, considered as harmful and unnecessary, was no longer applied to urban land.

Understanding of the fact that now the city's development totally depends on the investment flow, stimulates cities to formation of their own legal base protecting the rights of investors and real property owners. Long-term rights to land, guaranteed by law, will, in their turn, give investors opportunity to get mortgage loans for construction. This manual is devoted to the process of urban planning and formation of land parcels as units of construction use of land, real property units and taxation units, units of mortgage and land turnover, units of registration of real property.

The **purpose** of this manual is to provide the cities' administrations with a mechanism of creating land parcels both on the developed and vacant land.

Our **tasks** are

- to determine the place of subdivision process in the existing system of urban planning and development,
- to explain the necessity of transforming urban planning and design procedures under new economic conditions,
- to recommend new approaches and methods of determination of the parcel size in different zones of a city.

The subject of research In the proposed context, subdivision is a process of planning and dividing undivided land into parcels, the size of which is established in accordance with the types and parameters of real property permitted in each specific zone of the city. Here the process of land subdivision is considered in a broader context - that of investment/construction planning and creation of standards.

The boundaries of research In this manual the problems of subdivision are viewed in connection with residential zones where these problems are most critical. Within the framework of this manual we examine the planning-and-design component, procedures related to it, as well as standards and parameters which form the basis for development of a subdivision project.

Novelty A specific feature of our approach to development of local standards and parameters, in comparison with the existing procedures, is that we link them with requirements for location of buildings on land parcels, which are the result of the tasks of non-causing damage to legal interests of neighbors, i.e. the norms of “neighbors’ law” applied in all the countries that have a variety of forms of ownership of real property. For the first time we developed quantitative correlation between parcel size and building size, between local urban construction conditions and density of development and etc., which makes it possible to provide grounds for zoning standards.

Practical value This manual is designated for use by local self-governance agencies, departments of city administrations, planning and design organizations and enterprises which prepare and make decisions on issues of urban planning and development. The manual is addressed, first of all, to cities which have already developed and adopted local legal and administrative acts “Land Use and Development Regulations”, as well as to cities which have chosen the way of reforms in the area of investment/construction activities and are actively looking for new ways of city development through giving investors legal rights to land.

We present materials, which are based on the analysis of Russian and foreign regulatory documents, as well as the first experience of land subdivision in cities, and which will be helpful to city administrations in development of local standards and parameters of land parcels and real property, that are necessary for planning and design practice.

Testing This manual was tested in the cities of Novgorod and Tver in application to re-organization of residential zones of obsolete wooden development, development of areas of multi-storey “panel” development of the 70s-80s, as well as formation of new development on vacant land.

The structure of the manual It consists of two volumes. The first volume includes introduction, five parts, conclusions, basic terms and definitions. The second volume includes appendices and the list of the literature used.

Part 1 main problems of urban development under market conditions and problems which arise in cities when they organize investment process

Part 2 analysis of approaches to planning and re-organization of urban areas in the background of historic development of Russian cities

Part 3 typical tasks of subdivision and answers to a number of questions arising in the process of land subdivision

Part 4 theoretical issues of development of zoning standards, principles of creating parameters, standards for residential zones of different density (different intensity of land use)

Part 5 analysis of the first experience of land subdivision in cities where the materials of this manual were tested

Volume II includes **seven appendices** which supplement and explain the text of the basic parts

How to use this manual

This manual is a methodological material and provides specific recommendations related to local conditions. It contains principal provisions and models based on which each city can develop local "Urban Planning and Subdivision Regulations" as part of "Land Use and Development Regulations" or as a separate document. It shall include the following parts:

- land subdivision regulations,
- procedures for discussion, coordination and approval of projects of land planning and subdivision,
- standards of size of land parcels for different types of real property use and zoning standards

INTRODUCTION

This manual is intended for use by local self-governance agencies, departments of city administrations, planning and design organizations and institutions which are involved in the decision-making process related to issues of urban planning and development

This manual is addressed, first of all, to cities that have developed and adopted a local regulatory/legal document "Land Use and Development Regulations", as well as for cities that have chosen the way of reforms in the sphere of investment and construction activities and are actively looking for new ways of urban development based on agreements with investors

The ideology of these reforms is based on the following

- the city (the city authorities) develops the necessary legal base in order to provide investors with guaranteed rights to land and real estate, to simplify the procedures for coordination of documents and issuance of construction permits and to more efficiently exercise control over land use,
- investors, obtaining necessary rights and guarantees, invest money in construction on urban land in order to gain profit,
- the city collects adequate taxes and rent payments which are allocated to local budget

Understanding of the fact that at present urban development totally depends on the investment inflow, brings the city to creation of local legal and administrative documents to support rights of investors. The practice of attracting investments is based on principles which are general for market-based countries and are based on long-term ownership rights to land which, in its turn, makes it possible for investors to get mortgage loans for construction

At present, in foreign countries, as it used to be in the pre-revolution Russia, a real estate unit is a land parcel for which there have been established all standards and restrictions on its use and alteration. This manual is devoted to the process of urban planning and formation of land parcels which are units of construction use of land, real property and taxation units, units of pledge and land market turn-over and units of registration of real property

One of the purposes of this manual is also to determine the place of this process in the existing system of urban planning, without which the process of formation of real property units will be restricted to tasks of land inventory-making that do not take into account the prospectives of future urban development

The materials presented in this manual are based on the analysis of local and foreign documents, as well as the first experience of land subdivision in some Russian

cities. The manual will be useful for cities developing local standards and parameters of land parcels and real estate, which are necessary for project planning and design. In this work we emphasize the problems of residential areas and in order to resolve these particular problems, we provide recommendations on determination of parameters of land parcels in close connection with residential objects. The specific feature of this approach to development of local standards in comparison with the existing system of establishment of urban development standards is their close connection with requirements for location of buildings on land. Underlying this approach is the basic principle that no damage shall be inflicted to legal rights of neighbors, i.e. the principle of "neighbor's law" applied in all the countries that have a variety of forms of real property ownership.

The purpose of this manual is to provide a mechanism for implementing urban development plans through creation of a planning process based on the relationship - "city" - "developer". This process involves subdivision - a system of technical and legal actions that is necessary for new economic conditions and which means formation of land parcels as units of real property and property law.

In the proposed context, subdivision is a process of planning and dividing undivided land into parcels the size of which is established in accordance with the types and parameters of real property permitted in each particular zone of a city. These parameters are, as a rule, part of "zoning standards" which also include maximum development density, parking requirements, land parcel development requirements and other standards which a developer/investor needs for making decisions about the type and scope of future construction and investments. In the USA practice there exist, as a rule, two types of local legal documents - zoning regulations and subdivision regulations (subdivision into "planned unit developments" and land parcels). The zoning regulations regulate land use and alteration of real property by establishing a list of permitted functional uses and permitted (minimum and maximum) development parameters for parcels located within city zones. The subdivision regulations regulate activities of a planner (subdivider, developer) and are by their content similar to Russian standards of planning and development.

However, important differences exist between the US local laws and Russian construction standards and regulations that were created in a non-market system. Therefore, one of the main purposes of this manual is to explain those differences, as well as explain the necessity of transformation of the existing planning and design procedures under new economic conditions.

Thus, in this manual the process of subdivision is considered in a broader context - that is of investment/construction planning and project designing, as well as development of norms and standards.

PART 1 URBAN DEVELOPMENT

1 1 Problems of Urban Development

1 1 1 Law and the City Master Plan

The process of land development involves a set of actions which are planned by the city authorities in order to work out a strategy for long-term (20-25 years), middle-term (5-7 years) and short-term (1-2 years) development of urban land in the form of strategic plans and programs and implement these programs by means of more detailed plans of area development

The city intentions with regard to land development were expressed in the form of city plans (in the pre-revolution period) and Master Plans (in the soviet period)

Historically, according to the pre-revolution Construction Charter, any settlement could appear only as a result of land planning, and "cities were built only according to plans approved in the prescribed manner" All construction in cities was implemented in accordance with the city plan and any changes to the plan were interpreted and regulated by the Construction Charter - the basic law in the area of urban construction In cities that adopted City Provisions, it was regulated by resolutions of City Assemblies (City Duma)

In the soviet period, the City Master Plan - the basic document of long-term planning - combined functions of a social/economic plan and a legal document establishing legal regime of urban land use

In order to detail the City Master Plan for areas of primary development, the so-called "detailed planning projects" (hereinafter - "PDP") were developed The Master Plan and PDPs were the two basic stages of planning and design work Both stages were the result of centralized planning activities of governmental institutions Implementation of these plans was also financed by the government The Master Plan and PDP determined the legal regime of urban land use throughout the Soviet period As no private developers existed in urban construction activities, there was no need for law to regulate this type of activity

Such a need appeared in post-perestroika period In the law "On Fundamentals of Urban Development Activities" adopted in 1992, very timid attempts were made to regulate relations between the state and private persons in the sphere of urban development activities, but the procedures for development, coordination and approval of urban planning documentation remained unchanged However, it became more and more obvious that urban planning and urban development can no longer be the central government function In accordance with the Law "On General Principles of Local Self-Governance", planning and development were referred to the jurisdiction of local self-governance agencies The city land was gradually gaining the status of "real property" as it used to be before the Revolution of 1917 Construction alteration of real property, i.e. alteration of everything which is

constructed or reconstructed on a land parcel, will again be regulated by local legal acts. The result of the first serious experience of local land use regulation was creation and adoption of "Land Use and Development Regulations" containing legal rules and zoning regulations, maps and procedures for urban development in several Russian cities (Novgorod, Tver, Irkutsk and Pushkin (St - Petersburg region))

A considerable step forward in attempts to bring Master Plans (and other urban planning documents) into line with the Law was made by creation of the Draft Urban Development Code, which has by now passed the third reading in the State Duma

While the law "On Fundamentals of Urban Development" says that urban planning documentation is "a system of types and stages of project planning and design", as well as "a unified system of interrelated planning documents in which all types of project documentation approved before must be taken into account when developing the succeeding ones, and which serves as the basis for development of housing, industrial and infrastructure projects", the Draft Urban Development Code no longer contains the concepts of a "system" and "stages". According to it, local urban development documentation is developed based on local regulatory documents on land use and development and procedures described in them. Thus, the old system of consecutively developed documents, that resulted in establishment of a single "targeted use" of land, is substituted by urban development regulations which include the approved list of permitted land uses

The status of the City Master Plan is also changing from "the basic legal document" of cities to a "local document on urban planning and development", i.e. the city plan that reflects intentions of the city community with respect to development of the city

Having lost its significance as a legal document, the Master Plan under new conditions preserves to some extent the role of a document for strategic land development. Local land use and development regulations - containing procedures for changing the Master Plan in some zones, as well as for making alterations to real property by private persons (owners and developers) - present a constantly operating mechanism for implementing long-term plans. The regulations prescribe what can be built by a private person on the land, and therefore, the construction intentions of a private person must conform to these regulations. This conformity of developer's intentions to the regulations must be controlled by the city's authorized agencies

1.1.2 What is the difference between urban development plans of the soviet period and urban development plans created under market conditions?

The basic difference consists in the fact that any urban development project (let it be subdivision plans in the USA or detailed plans in Germany) is developed on the basis of local legislation containing both urban development requirements (maximum/minimum parameters of parcels, streets, buildings and structures) and legal norms and procedures describing relations between the city and developers with regard to coordination and approval of projects. The availability of this law makes it possible for all interested parties to know in advance all regulations and restrictions on land use

and construction, and for the court and persons responsible for project approval - to have appropriate basis for decision-making

Secondly, in contrast to development plans of the soviet period, the process of working out subdivision plans involves non-budget financing, i.e. financing at the expense of investors or developers who have intentions to implement an investment project in the area with the purpose of getting profit from future sale or lease of the land (or buildings constructed on it) provided with infrastructure facilities

This causes a considerable difference between development plans of the soviet period and investment projects under conditions of the emerging Russian market. The specifics consist in the following

- 1 Investment-construction activity is a very capital-intensive form of investment as compared to others. Therefore, real property investors do not want to run the risk of investing money into large projects such as PDP for districts and micro-rayons (analogous to the planned unit development in the USA). While no land mortgage mechanism is available, investors prefer minor and quickly paid-back projects.

Therefore, the city policy should be very well thought through with regard to activities on attracting investments in real property

- 2 Real property investors study in detail the supply and demand on the real property market before they make decisions regarding development of a project. That is why in project designing of a residential micro-rayon, they will insist on those types of land use which would provide maximum commercial profit. This means that, if a city considers it necessary to build non-commercial social infrastructure objects on this site, it should pay the expenses or agree on the terms of financing with the investor. In other words, the city can propose only mutually acceptable terms, otherwise the investor will refuse to invest money into development of this area.

- 3 Another specific feature is that current standards and parameters for construction of cultural and social infrastructure as well as other non-profitable objects can not be used under current conditions and are losing their status of mandatory standards. In practice, this results in two things: either the land that is designated according to PDP for location of social infrastructure (schools, service enterprises and kindergartens) remains vacant, or it is not allocated at all.

In this respect, the city is facing the task of working out local standards for social infrastructure and relating them to concrete social/demographic and economic conditions of the city, as well as standards for location of parking lots, advertisements and other objects that appeared lately and the use of which must be regulated locally. Under current law, regional and local regulations may be developed while the government regulations related to living standards, standards for preservation of cultural heritage and natural environment shall be developed on the federal level.

Right now, the cities may not wait for the subjects of the Russian Federation to adopt their regional standards, but may adopt local standards that will make part of "Land Use and Development Regulations"

1 1 3 What are the city tasks in the process of implementation of urban development plans?

Based on the above , the city tasks are as follows

1 Bring more detail to the provisions of the law "On General Principles of Local Self-Governance" with regard to issues of planning and development Create local legal base on urban land use and development policy, the city policy with respect to allocation of land for construction and expropriation of land for municipal needs

2 Determine strategic planning objectives in the form of a concept of social/economic development of the city based on the approved land use policy

3 Work out programs of primary area development, to identify "sites" which can be used to solve the city problems in the shortest period and with maximum economic efficiency

4 Determine relations between the city, investors, developers and citizens with respect to preparation of land for conveyance for its development in the form of local regulatory documents, agreements, local standards and other documents

5 Propose clear procedures for creation, coordination and approval of land planning and subdivision plans, construction plans Establish procedures for project coordination by the city, informing the public of the proposed changes

6 Determine the basic terms of agreement between the city and developer, distributing responsibilities with regard to construction of roads and infrastructure facilities, as well as compensation to land users for expropriation or removal of their real property

7 Determine the minimum number of municipal infrastructure objects which must be constructed on this particular stage of the city economic development, and for which land should be reserved or a public servitude should be established

8 Outline ways of changing construction standards in order to relate them more closely to a land parcel, establish zoning standards, propose methods for determination of maximum/minimum size of parcels designated for development in different urban conditions and different urban zones (subdivision regulations)

1 2 The Problems that Cities Come Across When They Organize Investment Process

1 2 1 Grounds for Decision-Making by the City Authorities and the Process of Planning and Re-organization of Urban Land

Decisions on planning organization (or re-organization) of urban land can be made both on the initiative of the city (with the purpose of inventory-making, reconstruction or new construction) and developers (interested in receiving future profit from investment/construction activities)

The biggest problems arise, as a rule, when it is necessary to re-organize the already-developed urban areas which involves changes in its planning structure - extension of roads, enlargement of blocks, reconstruction of infrastructure network

In the soviet practice, such areas were transformed through development of PDP for the whole area in accordance with the existing standards that envisaged the whole complex of services, kindergartens, schools, etc. Strict compliance with the PDP was mandatory and was financed by a single investor - the state. After the collapse of the governmental construction complex, implementation of PDPs was no longer possible because investors are not able (or not willing) to take upon themselves all expenses of social infrastructure, as they are mainly interested in the construction of commercially profitable objects. The result of this is that PDP are implemented only partially, which results in ugly planning decisions and incomplete projects.

There arise other problems related to the approved PDPs that were developed 7-10 years ago and are now "gathering dust on the shelf". Actually, the city administrations do not have any grounds and resources for adjustment of these outdated plans, but nevertheless, under current law, the allocation of land for construction must be implemented based on these PDPs. And though they can not be implemented by the above said reasons, they still have the status of current urban development documents, and in reality land is allocated by separate parcels under procedures for "reservation of site" or a short-term lease of a parcel for the period of planning, design and construction. Developers do not have any legal rights to land till the construction is completed, which makes the transfer or pledge of rights impossible. This increases greatly investors' risk and impedes implementation of urban development plans in general. That is why it is necessary to reconsider the procedures for development and approval of urban development documents, correlate the scope of this work with the city's financial resources, provide legal guarantees and mutually beneficial conditions for attracting investors. And - what is most important - to understand that the success in implementation of urban development is achieved by the ability of the city administration to conclude agreements, but not by strict administrative measures.

Apart from these planning problems, problems exist related to the lack of legal documents which regulate issues of taking land from the existing owners, reservation of land for social infrastructure needs, compensation to real property owners when their property is taken for reconstruction purposes, etc. As a rule, most of these issues

are not regulated by law, and therefore, the city, investors and actual land users try to resolve them locally by means of agreements

Organizing investment process, the city faces the task of working out a sequence of actions which will result in a balance between the interests of the city implementing development plans, interests of investors who put their money into reconstruction and interests of residents who are relocated to better residential areas

The plan of actions of the city administration in these cases involves development of investment process including

- preparation of a conceptual plan of land development (reconstruction) and, if necessary, changing zoning regulations,
- development of land subdivision plans taking into account commercial interests of investors,
- organization of project coordination and approval process,
- making a decision on reservation of land for public needs and informing all real property owners within the reservation area,
- organization of land taking procedure and compensation of damage in the agreed form,
- preparation of the whole package of information on parcels created based on the approved subdivision plan and designated for conveyance,
- preparation of agreements with investors which register their rights to real property, terms of financing or responsibilities before the city,
- organization of the procedure for conveyance of land to developers by means of a tender, auction or development agreement

1 2 2 Reservation of land

In this respect, an important question, which was not answered in the Russian urban development practice, is the right of the city to reserve land for public needs and procedures for its establishment. Here it is necessary to determine relations between the municipality and real property owners, the rights of which will be affected or restricted due to the future taking of their land.

Reservation of land for public needs is one of the rights of the municipality to establish (for a certain period) restrictions on the use of real property by its owner through its future taking or establishment of a public servitude in order to implement urban development plans and meet the public need for engineering, transport or social infrastructure objects. Reservation should be legally defined with respect to land that is not subject to privatization.

With respect to this definition, we come across the following questions

- 1 - what is a public need and when is it established?
- 2- when is the decision on land reservation made and under what conditions?"
- 3- what are legal consequences of land reservation?

4- place of reservation in land planning process and implementation of the city intentions

5- reservation procedure

Applied to the subject of our manual, a public need is something that must be included in the municipality plans and the approved planning documents (the Master Plan, PDP) with the purpose of public welfare. In particular, one of the most important issues regulated by the Civil Code (Article 280 entering into force upon adoption of the Land Code) rights of owners of land that may be taken for governmental or municipal needs. Here the question is - what is the criterion of a "municipal need", and, therefore, the reason for local self-governance agencies to make a "land taking" decision.

We can propose the following interpretation for the criteria to determine what municipal needs are:

necessity to build objects for improvement of public well-being, safety and health of people, i.e. engineering-transport and social infrastructure: boulevards, streets, roads, bridges, tunnels, other transport structures, major engineering networks, parks, squares, embankments, beaches, health and educational institutions, public order institutions, fire protection services, schools.

The Master Plan as a long-term planning document, as a rule, establishes actions, the implementation of which according to the proposed budget is restricted by 20-25 years. Such actions, reflecting public needs, may include reconstruction of obsolete residential stock, new municipal housing construction, lay out of new roads, construction of bridges and major engineering facilities, etc. The fact of adoption of the Master Plan after the public hearing is the fact of recognition of a public need and, therefore, the basis for future reservation. Areas which are subject to future zoning changes are shown on zoning maps which are accompanied by corresponding regulations (permitted land use types and real property parameters). This means that before any activity on taking property for public construction begins, all land owners have the right to use and make changes to their real property in accordance with the permitted use types and parameters. Thus, the recognition of a public need through approval of a long-term plan is not reservation itself, and does not give rise to any restrictions of real property rights except for the possible alteration of land use type.

Decisions on reservation can be made only after public discussion and approval of the corresponding planning document which includes red lines plan and plan of other objects of public infrastructure.

The decision on reservation may be made only if implementation of this particular project, designated to meet public needs, is not possible without expropriation of real property (in this case the public need was established by the Master Plan and supported by the budget or other financial resources). The plan shall clearly show boundaries of the reserved land (a future road, subsurface collector, land for location of social infrastructure, etc.). The decision on reservation shall contain information on the proposed term of the beginning of the construction, the order of

land use by its owners in the reservation period and information on the term and procedure for taking land or establishing a public servitude. The date of publication of information about reservation entering into force may be also considered the date for calculation of the cost of real property purchased.

This, there should be developed a procedure for establishment of reservation period (under Article 279 of the Civil Code - no later than one year before the future expropriation), the procedure for purchase of land and real property subject to taking, the procedure for use of land during the reservation period including restrictions on its use and the right to make (or not make) construction alterations to it, as well as responsibilities of the municipality for breaking the deadlines.

Reservation may also take place if the proposed intentions (for instance, layout of new roads) are not related to property taking, but only to "keeping" this land by the municipality. It happens in cases when a proposed road will pass through municipal land and will not affect the interests of land owners. In this case reservation involves exclusion of this land from the privatization program and restriction of the rights users of this land.

1 2 3 Preparation of municipal (state) land for its conveyance to private persons

Primary provision of municipal land in private ownership or for lease must be preceded by its preparation which includes development of information packages, containing data necessary for the future owners or developers in implementation of his investment intentions.

Preparation of land to be conveyed to developers involves availability of the following:

- plan of land boundaries coordinated with neighboring owners (if a land parcel is located in the-already-developed area),
- information from the "Land Use and Development Regulations" on the corresponding zone, as well as information on servitudes and additional restrictions on land use,
- calculations of profit lost by land owners or land users and losses in agricultural production caused by taking the land,
- expert estimation of real property to be conveyed to developer or subject to demolition,
- information on the condition of engineering and transport infrastructure,
- conclusions of government hygiene and disease control agencies and ecological control agencies,
- conclusions of inspection for cultural/historic preservation if a land parcel is located within a historic preservation or archeological zone.

This informational package should be prepared by the city in case the land parcel is conveyed into ownership or provided for lease on the basis of a tender or an auction.

If land is conveyed based on a development agreement, the information provided can be restricted to the first two points which are necessary and enough for investors to create their business plans

1 2 4 “City - Investor” Agreement on Working Out Urban Development Projects

Investment project for development of urban areas involves participation of an investor (developer) on all stages of planning activities and must be implemented on the basis of agreement between the city administration and investor

On the basis of this agreement, investors obtain from the city administration a guaranteed right to develop this area during the agreed period. The agreement can be concluded for simultaneous or consequent (in case the project is approved), one-time or step-by-step conveyance of land into investors' ownership or for long-term lease

The agreement can contain the following terms and responsibilities of the city and investors

- demolition of obsolete buildings and relocation of the existing residents at the expense of investor or with his partial participation,
- preparation of the area for construction and installation of street illumination, engineering major and internal networks and constructions, other types of engineering infrastructure at the expense of investor or with his partial participation and further conveyance of these facilities to the city,
- preparation of the area and construction of public infrastructure facilities and their further conveyance to the city at the expense of investor or with his partial participation,
- construction of recreation facilities at the expense of investor and their further conveyance to the city,
- provision of financial resources for construction of public infrastructure objects,
- compensation of losses to land owners or users taking into account the lost profit and losses in agricultural production

The agreement may also cover issues of use of land or any real estate designated for future development, as well as the term of construction

After the agreement is concluded, the city administration should have no right to propose additional terms of project coordination or approval that are not part of the agreement

The procedure for project coordination involves organization of preliminary public hearings to which all persons involved or interested are invited. After the project is approved, investor can be empowered to conduct negotiations with actual land users (in case of re-organization of the area) about the terms of compensation to be paid to them if their property is taken

PART 2 APPROACHES TO RE-ORGANIZATION OF URBAN AREAS IN RUSSIAN CITIES

2 1 Analysis of Modern Condition of Cities

The most difficult task for city authorities is to chose the right direction for the city development, as no reliable forecasts can be made under conditions of instability and inflation. However, short-term and middle-term forecasts can be successful, if the objective is not set to globally transform the current system, but only to develop the rules of a game, which will make it possible to implement tasks of city transformation and development through finding and ensuring the balance between public and private interests when moving forward to the objectives set. However, before we formulate the objectives, it is necessary to analyze planning problems which are typical of all Russian cities, as well as possible ways of their solution. The analysis will be focused on the following (most typical) types of urban development:

- 1 Historic districts that took shape before 1917 based on the pre-revolutionary construction law (type A)
- 2 Blocks of townhouses of the 20-50s that were shaped by PiNs ("Rules and Norms") (type B),
- 3 Micro-rayons of the 60-80s that were based on SNIps ("Construction Norms and Standards") (types C,D,E),
- 4 Urban districts of individual wooden and mixed-type "estate" development of different periods, as well as new development that appeared during the construction "boom" of the last five years (type F)

This principle of analyzing urban land is mostly preferable for our purposes, because within each construction period, development is characterized by some permanent and homogeneous physical parameters which are based on construction standards valid during this construction period. This will make it possible to establish parameters of real property within each zone, determine approaches to establishing parcel size and boundaries, and general land use regulations, formulate regulations of real property development and reconstruction for each type of development zones.

From this view point, it is useful to consider structural elements of Russian cities, which have been created during different construction periods.

Despite considerable differences between Russian cities which are caused by their geographic location, climate, historic/cultural traditions and other factors, they all represent and reflect the state policy expressed in laws and construction standards of different historic periods of these cities.

From this point of view, all Russian cities can be divided into "old" and "new" ones. "Old" cities are those which were formed before the 1917 revolution and which

have still retained their original structural elements "New" cities were formed after the revolution This classification is rather artificial, because the structure of old cities in many cases was effected and distorted by impacts of later construction periods Fortunately or not, but in most old cities, the soviet time construction activities were mostly concentrated outside the old city center, attracting most part of investment, and due to this, the "old city" was preserved in general, though by now has deteriorated

Nevertheless, the planning structure of old and new cities is entirely different, as it is based on construction laws of two social/economic formations that are different by their real property relations

In this Section we mainly analyse districts of existing residential and mixed development Industrial areas are not reviewed here, because they should be a subject of special analysis

We analyze each development types according to the following positions

- characteristic of the period of formation of this development type,
- characteristics and parameters of development,
- problems related to development of areas of each type,
- ways of solving some of the problems

2 1 1 Historic Districts of the Old City (A-type)

The structure of the old city reflects legal interests of real property owners in the form of a distinct zoning structure of blocks that differs by value and economic use "Block" is a basic structural unit of old cities

According to functional use and size of land parcels, blocks are divided into commercial, residential and industrial Residential blocks are clearly differentiated by their location and quality of development depending on qualities of real property of the former owners

- blocks of estates and private residences of the former city aristocracy, blocks of expensive houses of the rich and houses of average-income people, blocks and trading houses of craftsmen that form the so-called "posad",
- blocks of city "slums" and cheap "furnished" flats of poor people,
- workers' settlements and barracks (huts) located closely to industrial enterprises,
- blocks of estate houses with land parcels on the city outskirts and "slobodas" for agricultural workers and craftsmen

Zones of the old city (except for slums and obsolete buildings destroyed in the first years after the revolution) have changed their social status, but have still preserved their structure All old cities, regardless of their size and administrative status, have such zones which form the most prestigious and functionally "saturated" zone of the city center In cities which preserved the integrity of the planning structure of this zone, its entire area, as a rule, is considered as zone of preservation of urban construction monuments and is supervised by historic preservation inspection

Block size falls within the range of 0.5-8 hectares, in some case - up to 12 hectares. The most typical blocks are those of 1-4 hectares. This small block size predetermines high density of street network where the distance between parallel streets is 50-300 meters (up to 400 m) with houses adjoining them and houses located along the perimeter. The block size can be different depending on its location and growing from the center to periphery also depending on its functional use.

The height of buildings is up to 4 floors (in some cities - up to 6 floors). It is the result of legal restrictions on the permitted development height and it reaches its maximum only in large cities.

Density of development in blocks is up to 80 %, and total building area is 30,000 square meters per hectare in large cities. In small and medium-size cities these figures are respectively 40-50 % (in 2-4 scale density) and 10,000-20,000 square meters per hectare. High density of development and high intensity of land use are the result of functioning of market mechanisms with respect to real estate in the pre-revolutionary period of urban development.

Here the questions related to subdivision can be formulated as follows: is it necessary to restore the historic boundaries of land parcels (owners' parcels) and how to do this?

In principle, these questions can be easily answered where boundaries of land parcels have been preserved or can be restored, and the parcel has a single owner (user). However, it is a rare case. More typical are situations where land parcels have not been preserved, boundaries have been "erased" or there have been several owners within this area.

Thus, the following issues arise:

- 1) principles of establishing "physical" boundaries of land parcels in case their historic boundaries can not be restored,
- 2) how to "fix" legal boundaries if they do not coincide with historic boundaries of a land parcel,
- 3) issue of legal boundaries with respect to two or more owners within the area of one historic land parcel.

As a rule, historic preservation agencies initiate conflicts related to these issues in the process of coordinating land boundaries. Very often, their requirements lead to the necessity to re-consider boundaries of land use. Besides, investors are often forced to acquire ownership of all real property located on the parcel.

For instance, in the city of Vyborg an investor chose a historic land parcel with an estate house and a coach-house located on it. He registered his rights to the estate house in order to renovate it and applied for registration of the land parcel. However, the historic preservation agencies appealed to the prosecutor's office to claim the transaction illegal, saying that the buildings are located within a historic parcel and can not be divided. The agency also said that they would have no objections if the

investor acquired and restored the coach-house as well. However, this was not part of the investor's plans and he decided to give up his plans. The result of all this - historic monuments continue to deteriorate.

The policy of preventing the division of land, implemented by various city agencies responsible for making decisions on land allocation, as a rule, contradicts the tasks of urban development. The question is what is the smallest parcel that may not be divided and for which no land use type may be established. We must say that there were no restrictions of minimum parcel size in the Construction Charter. It only established the distance to the parcel boundary, minimum court-yard size, the width of fire-emergency access. If an owner could use a parcel within the established requirements range, any size was considered permitted.

Thus, we can identify the following problems:

- lack of co-ordination of actions and disagreement between agencies responsible for decision-making in establishing parcel boundaries in the historic area,
- lack of minimum criteria for establishment of parcel size in the historic area.

2.1.2 Blocks of the 20s-50s (B-type)

The "new city" is a product of the socialist construction law based on state ownership of real property. The evolution of the soviet construction laws, characterized by transition from legal regulation to unified centralized management of urban construction, is reflected in three construction periods.

The first construction period (1917-1932) preserved the traditions of the "old-regime" construction law with modified ownership rights in the form of "the right to land development" and the "right to land lease", the forced introduction of which (after abolition of private ownership in cities in 1918) was caused by the war ruin and the need for private investments in construction and reconstruction. Land parcels were no longer real property units, but "attributes" that served the buildings provided by the state for use or lease. Urban construction activities mostly involved elimination of slums, selective construction based on the right to develop land and construction of workers' settlements. In general, the principle of "block" development was preserved, with the use of construction standards of the pre-revolutionary Construction Charter. On this basis the first Soviet planning and development document (PiN, 1929) was created, but did not have any legal status. Urban construction activity of this period did not exceed boundaries of "the old city" except for the first workers' settlements, the theoretical compositional basis of which was a "city-garden". At present the areas of workers' settlements have the status of monuments of the soviet urban construction. But as they occupy small areas in modern cities, they are not considered as a separate type of development.

The second period was characterized by establishment of a system of standard project design and micro-rayon planning that was implemented on the next stage.

Principles of micro-rayons were used as the basis for planning and design standards which influenced the transformation of traditional blocks as city planning units

This was also a period of establishment of the urban planning and development system based on "stage-by-stage" planning (which still exists) that involved the following documents "rayon" (district) planning scheme, the Master Plan, PDP and development project which were all worked out by governmental institutions

This construction period (up to 1958) was "materialized" in the city structure in the form of "enlarged" blocks of the soviet period (type B) Their structure still resembled the form of traditional residential blocks, but by its substance, such blocks were no longer neighborhoods of real property owners, but became elements of large-scale residential development

Block size - 6-12 hectares, maximum - 13-15 hectares By their functional use, all blocks were divided into residential and non-residential (industrial, hospital, etc) Inside the blocks there were separate areas of common use - sport and accessory facilities, green areas, etc

Development scale - 2-5 floors (in large cities - up to 6-8 floors) Standards of development density were established based on availability of residential space and population density and constituted 25-40 %, while density of residential stock was 3,000-7,000 square meters of total apartment area or 4,000-10,000 square meters of total building area per hectare

If we compare density characteristics of types "A" and "B" having analogous scale, the density is lower in the "B" type blocks This can be explained by the tendency to not use spare parcels for development as in "A" zone, but to use them as open spaces for cultural and public needs

The basic problem here is also availability of parking space Courtyard space is usually large enough and its area can be re-organized on order to find parking space along inside passes which are now "stuffed" with cars, while yard territories are practically not used for recreation purposes and could be partly "cut off" for parking purposes

At present residential environment of "B" type has high consumer value which should be preserved when establishing regulations of its development High consumer value of this environment brings about the necessity to additionally improve and slightly (5-10 %) increase the development density through reducing the size or changing the use of some areas that are not now used In the process of establishing parcel boundaries, the structure of parcels should not break the integrity of courtyard space, and parameters of new buildings should be brought into line with the existing ones In general, when planning blocks of B-type, it is possible to use the standards which existed in the period of their construction, making adjustments to some standards for undeveloped areas

2 1 3 Micro-rayons of the 60s-80s (C-,D-,E-types)

The third period of soviet urban construction was a period of large-scale industrial and residential construction, which constituted about 70 % of total construction volume in Russian cities. Urban development policy of this period was based on the principle of creating micro-rayons on the basis of "free" planning. Planning and development of cities was conducted based on three generations of construction standards (SNiPs of 1962, 1975, 1989 "Planning and Development of Settlements Standards of Project Design") which had the status of Law for the whole governmental construction complex and remained unchanged for almost 30 years. The growing industrialization and standardization of construction together with poor quality resulted in similarity, monotonous character and uniformity of development, as well as complete anonymity of image of most Russian cities. Another result of the idea of "free planning" was "non-structured" land use which presents the main problem in transition to legal land use in cities when solving tasks of division of micro-rayon land into parcels.

However, some differences in construction standards related to coefficients of housing density, scale, percentage size of residential areas, as well as tendencies to transition from "non-structured" development to "partially structured" in the form of housing groups and complexes, made it possible to determine within the framework of each SNiP generation period the following types of development which differed by their parameters and areas occupied:

- large-scale five-storey industrial development of the first generation (C-type)
- large-scale five- and nine-storey development of the second generation (D-type)
- "complex development" of the third generation (E-type)

The structural element of these zones is a micro-rayon, whose boundaries are "red lines" of arterial and residential streets. Arterial and residential streets, according to planning and development regulations, should not intersect micro-rayon area. The unit of planing division of these zones is the area between major roads including areas of several micro-rayons, the total area of which is 50-60 hectares.

Micro-rayon area is a sum of land, intended for multi-scale residential construction, and land allocated to primary public service enterprises and institutions. The total land occupied by residential buildings represents residential areas of micro-rayons and include the following elements:

- land occupied by residential buildings
- access roads and pedestrian passages leading to residential buildings
- open sites for temporary parking
- green areas, recreation sites, children play grounds, etc
- sports sites

Density of development is determined by the coefficient of residential density (in square meters of total apartment area per hectare, depending on building scale). Provision of larger apartment areas and increase in population density per hectare through increasing building scale actually resulted in less effective land use which

was demonstrated by double reduction of the percentage of developed area from 19 % in the development of the first generation to 11 % in the development of the last generation of industrial and residential construction

All the three zones are the subject of special attention when future land policy is developed, both in the sphere of division of ownership rights to municipal and private land, and establishment of size and boundaries of land parcels belonging to owners - natural persons and legal entities

In general, all these problems are connected with the fact that planning and design standards used in the micro-rayon planning, are based on the fact that elements of areas are calculated per one average consumer. As a result, within one residential group of a micro-rayon there are children play grounds, public service sites, garbage collection sites and other elements that can not easily be divided in the process of subdivision, as they are used by residents of several houses and "scattered" in the area. This task can be solved by formation of condominiums, on the basis of the attached "Methods of establishing boundaries and size of land parcels for condominiums which are created in the existing development"

The strategy of development of these zones should involve their planning structuralization, more efficient use of their chaotically developed areas, installation of accessory communication lines in spatially disorganized areas. These communication lines will be new residential streets within legally fixed boundaries - red lines, and the unit of the reconstructed area will be a block having the status of a neighborhood of real property owners. In this case, the process of reconstruction, brought into line with the municipal program of city development, will be implemented by land owners themselves, who would be interested in more effective use of their property improvement, additional construction and reconstruction

A special problem arises in connection with B-type development - the first generation of large-scale industrial five-storey construction. It is mainly represented by morally obsolete and not-subject-to-repair buildings located in the most convenient and improved city areas adjacent to the central city area. This conflict of high potential land value and the poor quality of real property located on it makes it necessary to bring land value in line with the value of buildings. That is why the city's primary attention should be paid to these areas when working out the policy of city development

2 1 4 Wooden "Estate" Residential Districts (F-type)

The last of the city zones to be considered is an area of "estate" development (F-type). The specific feature of this zone is that it exists practically in all categories of cities and in each construction period, except for capital cities and a number of major cities where this "estate" development was "squeezed out" by large-scale industrial construction. Another specific feature is that this type of development was historically formed as a homestead with a detached single-family house and accessory structures and was preserved as a development type based on private ownership of the building and permanent perpetual use of the land. However, when time passed, individual

houses were no longer single-family houses, which created certain difficulties both in privatization of the housing stock of this type, and, naturally, in the division of property

“Estate” development is different by its size and location depending on its size and historic conditions of its creation. In large and major cities, these zones are not large and are located both on the city outskirts and close to the historic center. In small and medium-size cities the “estate” development occupies, as a rule, most part of the city area.

The unit of land division was a block divided into land parcels (homesteads). Block size (0.6-0.8 hectares) and parcel size (600-1,200 square meters) considerably varies depending on its location in the city and the city size. The types and size of houses also varied - from a private city residence to a country house, as well as did the size and economic use of land parcels - from a small garden to a private farm with accessory structures in the yard.

Blocks can be intended for different functional use - from purely residential to mixed uses: commercial-residential, industrial-residential. But regardless of their use, each building or a group of buildings occupy a limited area, and all structures altogether form a sparse and dispersed structure of a low density block.

Density of block development: 5-20 % (up to 40 %) with building scale of 1-2 stories including attics or mezzanines.

The perspectives of development of this zone are determined by the ability of the municipality to raise the consumer value of this environment through improvement of engineering infrastructure.

Taking into account the current trend of transformation of “estate” districts into “cottage” districts on the city outskirts, we can suggest that the value of this land will considerably increase in the process of land privatization.

The problem of reconstruction of such areas is evidently the urgent one for cities, where such development occupies considerable areas of potentially valuable city land, close to city center. Meanwhile, it is a typical problem, because in the Soviet period the construction was concentrated mainly on the outskirts of cities, with no attention paid to central and adjacent districts. Now, when close location to the city center has direct economic effect on real property value, the necessity of reconstruction is evident both for the city and investors.

The first experience of planning re-organization of land based on new principles is described in Part 5.

PART 3 SUBDIVISION AS PART OF PLANNING ACTIVITY

3 1 About subdivision of urban land

3 1 1 What is subdivision

Subdivision in our understanding is more closely associated with agricultural activities. However, it is not true.

Land parcels in cities used to be “real property”. We are getting used to this concept of “real property” applied to a land parcel, and come to understanding it as an object of property law.

The right to land can only be implemented, i.e. can be transferred to somebody else, only if the parcel boundaries have been established and registered. A technical and legal action of establishment of boundaries is called subdivision - division of land into land parcels. In accordance with the current law, subdivision is a prerogative of land agencies, the functions of which include preparation of land management documents, registration of a parcel and marking boundaries on site. However, subdivision is not restricted to this, as formation of a land parcel is directly connected with planning activities, including planning of other construction objects (roads, etc.). Thus, land parcel boundaries in undeveloped areas are formed when plans for future development and construction of these areas are made.

From the urban planning point of view, the purpose of subdivision is to make a scheme for division of land into parcels, which envisages installation of all proposed objects, roads, passes, infrastructure objects. Besides, land parcel size will be determined by regulations and standards of the zone within which these parcels will be located.

In the existing development we deal with a real property unit that already exists, i.e. a building, and here the task of subdivision is restricted to legal registration of a land parcel which actually serves this building.

Thus, the purpose of subdivision of undivided land with respect to planning activities is to create real property units (parcels of land) in order to

- ensure effective land use through rational area planning, provision of infrastructure, rational correlation between the developed and vacant land, density characteristics, as well as permitted ratio of building space to parcel size, which are established for corresponding zones of the city.

Subdivision is also one of the effective mechanisms for involving urban land into public circulation through

- establishment of legal boundaries of land parcels with the purpose to transfer property rights (ownership, lease and other established by law) to natural

persons and legal entities for their use in accordance with all permitted land use types established for the corresponding city zone,

- registration, evaluation, taxation of land

3 1 2 Typical Tasks of Subdivision

All said above shows that the tasks of and procedures for subdivision of vacant land and subdivision in the existing development are different

Subdivision of vacant land in order to create new development is a planning process based on division of land into parcels with the purpose of effective planning, as well as formation of "lots" conveyed to private persons

The tasks of subdivision in the existing development are as follows

- to increase efficiency of land use through identification of unused areas - vacant parcels, dumps, "ownerless" parcels, as well as parcels having uses that are not permitted by zoning regulations - in order to form new real property units (land parcels) and prepare them for future conveyance (sale, lease), or change of land use type in accordance with the requirements of zoning regulations (for instance, in case of removal of enterprises harmful to environment),
- to provide the property rights to land to private persons in the form of registration of these rights in case of land privatization or transfer of the right of development

Subdivision, the result of which are real property units - land parcels, serves as a technical/legal instrument for stimulating land circulation, registration of rights to land and land transactions, as well as creation of real property taxation system

3 1 3 Land Subdivision Regulations Used in Foreign Countries

In foreign countries, projects of area development are prepared in accordance with local laws defining legal and technical norms of their development and implementation. In the USA subdivision regulations determine parameters (standards) and procedures for area subdivision. Land subdivision regulations describe the way of ensuring minimum public safety and minimum standards related to social infrastructure objects.

Land subdivision regulations, together with other urban development documents, are based on the "police" right of the state to protect health, safety and well-being of its citizens.

The right of municipalities and counties to adopt their regulations of land subdivision is based on the law of the states which lays out general principles of land subdivision. Local laws, on the basis of general principles, contain detailed procedures regulating these issues.

Originally, these regulations were created for precise description of each land parcel, which ensured possibility of its conveyance from one owner to another. Even now this is still the main purpose of the regulations. The regulations describe how land management shall be implemented and how results of land survey shall be shown on a land plat in order to prevent disputes over land between neighbors and determine rights to the land parcel. Apart from its original function, regulations of land subdivision are used to ensure reasonable area planning. They contain detailed description of requirements to the form and size of land parcels, they regulate access to main roads, minimum parameters of roads and passes, availability of pavements and gutters and their characteristics, installation of networks, requirements to installation of traffic lights, illumination of streets and landscaping. Apart from the tasks of public safety, the regulations contribute to implementation of a number of urban construction and planning tasks. Thus, at present the regulations include ecological and fiscal norms. They contain description of measures for prevention of floods on the adjoining parcels, control over water quality and use of coast-line, as well as requirements to construction of schools, parks, roads. According to the regulations of some states, developers must finance installation of infrastructure facilities including work on broadening the streets and installation of major engineering networks.

Thus, land subdivision regulations are the sum of legal, planning and technical norms covering the following issues

- to ensure the conformity of new construction to the approved plans of area development,
- to ensure minimum standards of life and health safety through creation of appropriate objects of engineering, transport and social infrastructure with minimum operational expenses in the subordinate area,
- to ensure the compatibility of new construction with the existing urban environment through adequate installation of new objects into the existing city infrastructure and to minimize negative effects of new construction on the surrounding environment

Land subdivision regulations and zoning regulations are two important tools of regulating land use processes. In their general form, regulations of land subdivision and zoning regulations (regardless of whether it is one document or separate ones) regulate transformation of vacant land into developed areas and their use for housing, trade, industrial functions, etc. The interrelation between zoning regulations and land subdivision regulations is as follows: zoning regulations regulate use of parcels which are formed as a result of operation of regulations of area development.

3.1.4 Are Land Subdivision Regulations Principally New for Russian Practice?

The answer to this question can be both “yes” and “no”

It is “yes”, if we make comparison with the period of socialist urban development when the legal regime of city land was determined not on the basis of

laws, but by PDP (Master Plans and PDP) All the projects, in their turn, were developed on the basis of all-union construction norms and rules (SNiPs) which were developed in a centralized way and were designated for application by the state construction complex and financing from the state budget The customer, project designer, contractor in one person - the state- building on the state land, dictated its terms to the final consumer of the production distributed - i e population, not taking into account its opinion related to the produced final product - ranging from an apartment to a new city, and not entering into any relations with regard to land use and development Construction norms and standards, on the basis of which the projects were developed, had a purely technical character And though socialist norms declared rational and economical use of city land, under conditions of a single state (which means - nobody's) ownership to land, as well as under conditions of norms per one average consumer, the city land use could not be effective This is the reason for many city problems which are to be solved, in particular ineffective use of land in micro-rayons and on territories of industrial enterprises, poor quality of housing in potentially valuable city areas, ecological problems and others

The answer can be "no", if we make comparison with the pre-revolution period of development of Russian cities Land subdivision was the basis for registration of land ownership starting from the 16th century and till 1917 The materials of the Archive of Subdivision Department show the scope of subdivision activities in Russia at that time The Archive of Subdivision Department, eliminated in 1918, had been a place for storage of data on the condition of land property in the Russian Empire for a century and a half The main function of this Archive was documentary registration of the right of private ownership of land as the basis for the existing state order The Archive included documents of three subdivision periods Elizavetinski, General and Special The General subdivision, the basic principles of which were developed by the Commission for Government Subdivision, started in 1765 In the first quarter of the 19th century, over 400 plans and subdivision books were registered in the Archive annually The Archive also included general district plans, large maps and region and district maps In late 1830 the government organized and conducted Special subdivision with the assistance of elected "dvorianski" bodies This subdivision involved the area of 165 million hectares At the end of 1860 the Subdivision Department issued annually more than 6,000 copies of subdivision plans In 1913, more than 650,000 cases, 572,538 General and Special subdivision plans and 521,201 subdivision books were stored in the Archive

The existence of private ownership to land determined the legal status of city land as real property with respect to which the established legal norms of use and development existed Land parcels were the subjects of property law and were involved into the economic turn-over with all accompanying consequences Any disputes relating to land boundaries were solved by court (subdivision disputes) Relations between all the participants of construction activity were regulated by the law - Construction Charter and mandatory resolutions of the City Duma (for cities which adopted City Provisions) The law established procedures for development, approval and alteration of the city plans, parameters of the street minimum width, procedures for coordination of private construction, requirements to public and governmental buildings The law also contained provisions regulating the land of

common use and provisions of the “neighbor (private) law” relating to owners of adjacent land (what can and can not be build on a land parcel) The law was addressed to all categories of land owners and contained grounds for court decision-making in case of disputes

After abolition of private ownership to real property in 1917, land parcels lost the status of objects of property law and were transformed into parcels serving the buildings located on them Norms of their size were established and land surpluses were withdrawn Starting from 30s , the state was conducting a consequent policy of use of city land according to targeted use Organization of this planned consequent use was reflected in planning and development projects of cities which were approved by government agencies

The main documents on urban land use were regulatory “acts” for urban planning and development In particular, the main land use regulatory act was the city Master Plan A notion of land management appeared The specifics of this management is that its main starting point is planning of settlements, in accordance with which land allocation, taking and registration is implemented This, regulatory “acts” regulating planning and development, became the only documents that established a legal regime of urban land, having excluded the concept of subdivision as harmful and useless

3 2 What is the Process of Land Subdivision?

3 2 1 Answers to Some Questions

Land parcel is a area of a certain size having its boundaries Herewith a natural question arises who, in what order and according to what criteria establishes boundaries and size of land parcels

“On what basis”

On this stage the main owner of urban land is the city administration Therefore, the city, represented by its bodies, has the rights of land use planning and land disposal The reason for subdivision can be a regulatory legal act adopted by the city community and containing regulations and norms of subdivision which regulate minimum required size of land parcels in the corresponding city zones, rules of establishment of parcel boundaries, required size of passages and accesses, rules for establishment of servitudes, etc

For subdivision purposes it is also necessary to have a conceptual plan of city development and the rules according to which this plan will be implemented - “Land Use and Development Regulations” Zoning standards, that determine parameters of parcels in each city zone, constitute an important part of “Land Use and Development Regulations”

Subdivision regulations may be a part of “Land Use and Development Regulations” or may be adopted as a separate legal document

This manual contains materials describing methods of land subdivision in the existing development and in undeveloped areas. The methods of land subdivision in the existing development are presented in p 3 2 4

Methods of subdivision of undeveloped land, based on zoning standards, are presented in Part 4 of this manual

“Who can be the initiator of subdivision and in what cases?”

Land subdivision can be conducted on the city’s initiative when preparing land parcels to be transferred to developers on newly developed territories, when re-planning the already developed territories with the purpose of a more effective use, as well as when making inventory of city land. The city has the right to organize development of a planning /subdivision project on the basis of competition

The initiator of subdivision can be a developer who is interested in development of a land subdivision plan for future development

Subdivision can be implemented on the initiative of legal entities and natural persons in cases of division or merge of occupied land parcels, allocation of parcels from undivided land stock (residential territories), formation of condominiums, determination of land boundaries, privatization of land beneath enterprises, and in other cases established by legislation and in the order stipulated by the Resolution No 105 of the RF Government “On the Order of Establishment of Land Use Boundaries in Development of Cities and Other Settlements” dated 02 02 96

“What are actions on subdivision?”

The result of subdivision process are land parcels formed as real property objects, i.e. having established boundaries in accordance with the size required for their appropriate type of use (function)

Formation of land parcels as real property objects in general has three components: planning (project of boundaries), object registration, registration of property right to the object (registration of rights)

Within the framework of this manual we consider the first component - planning - as well as procedures related to it, norms and parameters on which a subdivision plan is based

This planning and design component (i.e. development of planning/subdivision projects) can include one or two development stages, depending on whether it is connected with lay out of streets and roads or it is dealing only with planning the parcels boundaries on the land already planned and divided by roads

In general, the planning stage includes

- creation of area development plans, i.e. plans of division of the area into structural units (micro-rayons, blocks) in accordance with the zoning regulations and construction standards, lay out of streets and engineering networks,

- creation of a land subdivision plan, i.e. plan of dividing a structural unit (micro-rayon, block) into land parcels according to functional use of the zone in which this structural unit is located and according to real property parameters permitted in this zone (zoning standards)

Planning and subdivision can be implemented within the framework of a single project, depending on the size of the land to be subdivided. The project must be discussed at public hearings before its final approval, regardless of how it is developed and who finances it.

3.2.2 Approval of a Subdivision Plan in the USA

Usually, land subdivision approval procedures include the three following stages:

- interview, prior to official submission of application for land subdivision (usually herewith a scheme of land subdivision is provided),
- preliminary consideration of the scheme of land subdivision,
- final approval of the scheme of land subdivision. The scheme of land subdivision can be determined as plan of land subdivision, defining location and boundaries of streets and passages, specific land parcels (lots) and other information on the area.

Sometimes, there is a distinction between "major" and "minor" land subdivision depending on the number of parcels being formed. With respect to Russian practice, they are represented by the scheme of planning and the scheme of subdivision, as "major" subdivision includes (besides division into parcels) the lay out of new streets, extension of city engineering and transport networks or construction of social and cultural objects.

The process of coordination of "minor" subdivision is simpler. It may consist of only one stage, if a newly developed land is subdivided.

The basic obligations and authority of the main participants of the procedure in general include:

- developer (subdivider or developer) - goes through all three stages of coordination stipulated by the procedure and provides all required information (scheme, project),
- technical staff of the architecture-planning department provides the developer with information on city development and assists the planning commission in consideration and evaluation of the proposed land subdivision project,
- the planning commission considers the subdivision project and recommends the representative body on its approval or disapproval,

- the representative body officially approves (or disapproves) the scheme of land subdivision

3 2 3 Transformation of the existing procedure for approval of a subdivision project in Russian practice

The procedure for coordination of the scheme of land subdivision of the USA has three significant differences compared to our practice

- the procedure is based on regulation of relations between developers and the city, while in our practice projects of planning are made, as a rule, by the city order (request),
- open character of the procedure, i.e. obligatory presentation of the proposed scheme at public hearings (in our practice PDP is a secret document),
- final decision on the scheme approval is made by an elected body - planning commission or city council - i.e. persons representing public interests (here approval of PDPs always used to be the authority of the executive body - architecture agency)

What transformation is necessary for the procedure for coordination and approval of the project of planning/subdivision?

Evidently, the transformation is dealing, first of all, with its publicity, as well as with participation of all persons interested, starting from existing land users and up to representatives of the city interests when making final decisions

If the city has already adopted Land Use and Development Regulations, and created a planning commission (or zoning commission), then the scheme of relations between developers and the city can be three-staged as well, and will look as follows

1 Developer submits an application for construction (development) with simultaneous submission of a concept or scheme of the planning/subdivision project, the scheme is discussed by the architecture department, land committee, commission from the point of view of its compliance with planning norms and subdivision regulations. The commission discusses with the developer the preliminary terms of land development including obligation to reserve the land parcel for the period of project development, and provides the developer with all necessary initial information and explanation of coordination procedures

2 The developer submits the intermediate version of the project to the planning commission. The commission (or bodies authorized) considers the scheme from the point of view of its compliance with all terms discussed above, regulations of subdivision, technical norms and standards and, in case it is agreed, the city and the developer sign an agreement on development of this land as well as on transfer of the right to conduct negotiations on the terms of compensation with investors (or existing land users), to the developer

3 Then the developer submits the final scheme to the commission which organizes public hearings on the project. Judging by the results of public hearings and taking into consideration opinion of experts, the commission prepares a decision on the approval (disapproval) of the planning/subdivision project. The decision of the commission is approved by the mayor's resolution (or the city Duma in cities which have no such a commission, or if it is not an elected body)

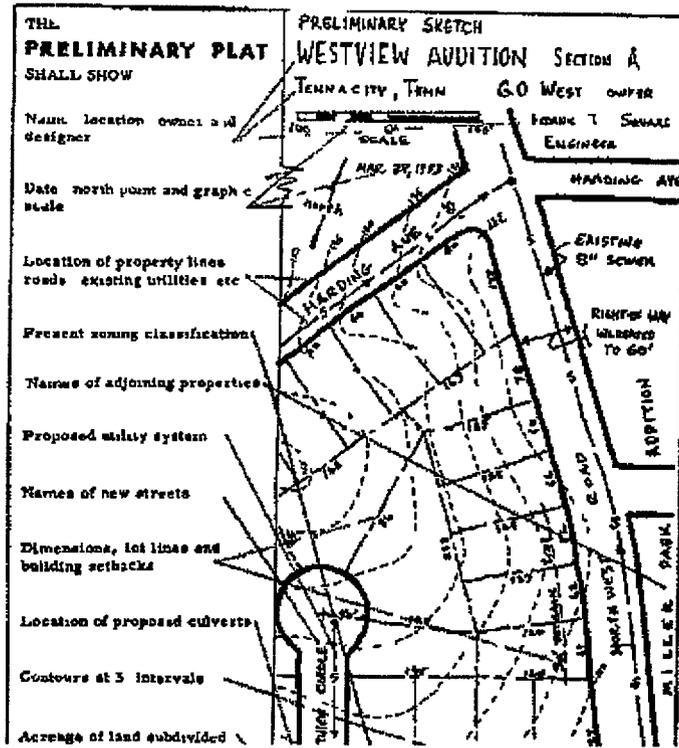
The approved project is registered in the prescribed manner

The approved project can be the basis for

- making decision by the city on land reservation for lay out of roads, land parcels for social infrastructure objects,
- making decisions by the city on land taking, indicating the beginning of the procedure for land expropriation (taking) and procedures of paying compensation with publication of this decision in local press and informing all land users whose interests are involved

An example of the procedure for coordination of projects of planning/subdivision in cases when the city initiates their development are the "Land Use and Development Regulations of the City of Tver"

Fig 3 2 1 PRELIMINARY SUBDIVISION PLAN



Def 3 2 2 FINAL SUBDIVISION PLAN

FIG 3 2 3
 SUBDIVISION AND SITE PLAN
 APPROVAL PROCEDURE

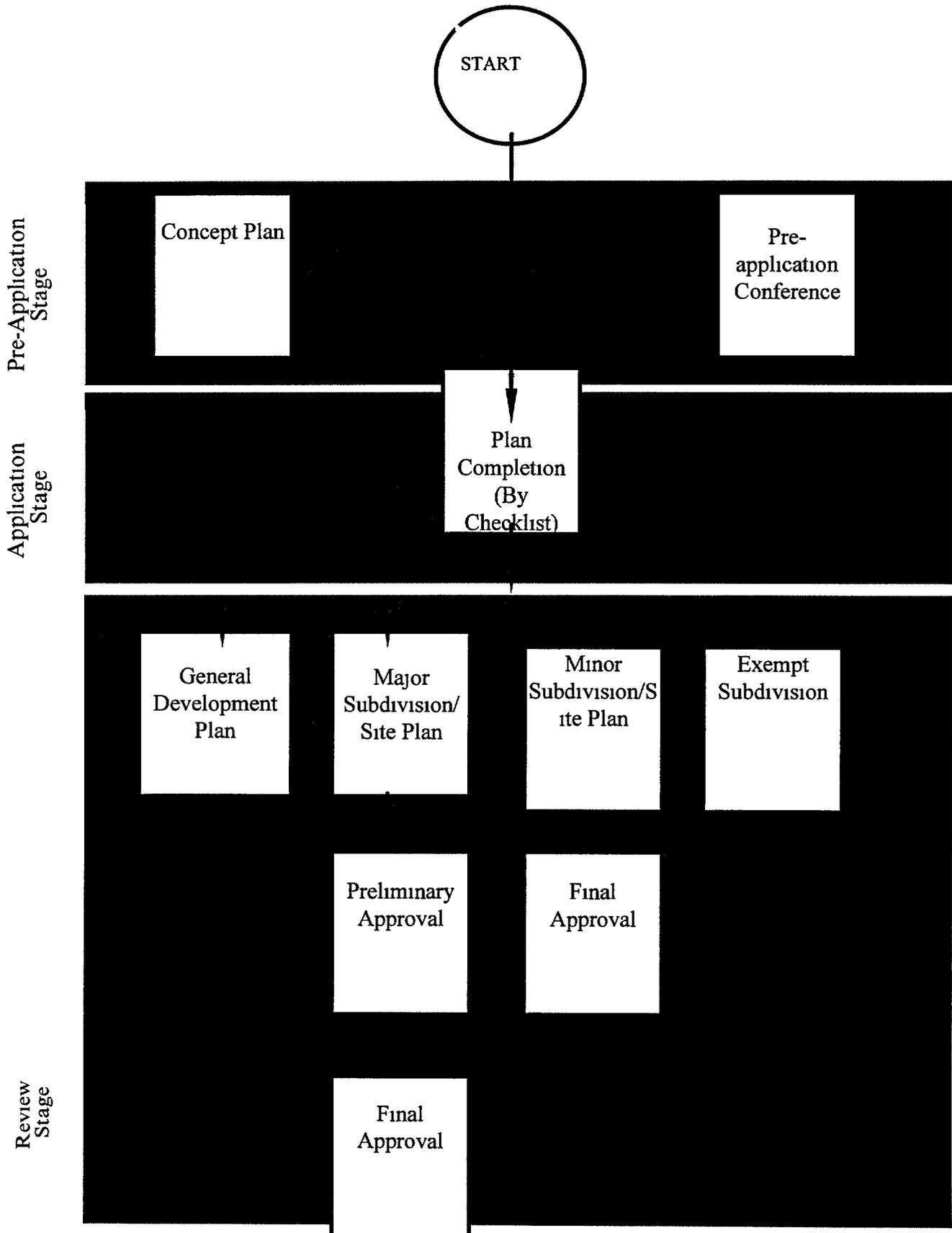
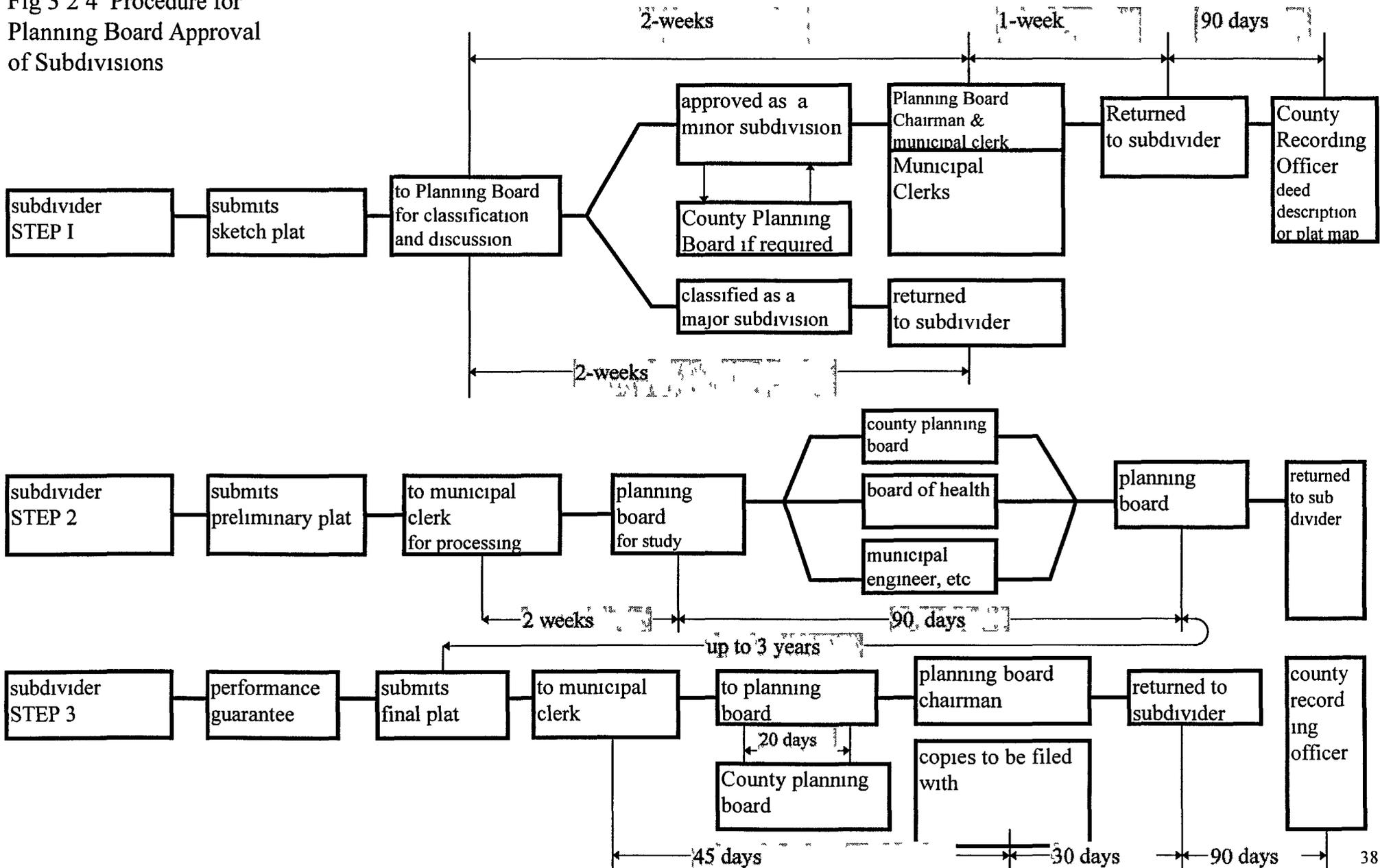


Fig 3 2 4 Procedure for Planning Board Approval of Subdivisions



38

PART 4 ZONING STANDARDS

41 METHODS OF AND APPROACHES TO ESTABLISHMENT OF ZONING STANDARDS

Zoning standards are characterized by general requirements for types of real property use and development parameters of land parcels located in this zone, i.e. the combination of quantitative and qualitative criteria. Though in the context of subdivision, we are more interested in qualitative criteria, in this manual it would be useful to consider basic qualitative criteria which directly influence parcel parameters.

The main qualitative criterion is the degree of compatibility of types of real property use from the position of "no damage" to the main type of activity. In this manual we mostly consider residential zones, i.e. those city districts where residential development prevails. Therefore, when we mention the main type of activity, we mean that the standard of living shall be ensured, no damage shall be caused to the citizens' health and welfare as well as to the residential environment in general.

In the US practice, the standards of residential zones are based on the criteria of safety and comfort which correspond to the property qualification and income of owners and lessees of real property located in these zones. The result of this is the existence of considerable differences in requirements to development of land parcels and to the size of these parcels even in the case if we speak about one and the same typological unit, such as a single-family house. Thus, in residential zones occupied by such houses, different building parameters may exist, and size of land parcels may vary a lot. Zoning standards, as a rule, differ by the list of permitted types of land use. According to the USA traditions, location of schools and other objects that may be a source of noise or other inconveniences, in residential zones is not acceptable, but the availability of sport and recreation facilities (tennis courts, swimming pools, etc.) is highly estimated.

Zoning standards are directly connected with real property costs - the higher the standards, the higher real property value is. Usually, a "high" standard of a residential zone is characterized by low density of development, large open spaces, low coefficient of the developed area. And, vice versa, a "low" standard of a residential zone - by high development densities and sometimes, existence of incompatible types of land use.

It is clear that the high standard is more expensive than the low one. But even within types of development that are close by their standards, people can have a choice. Thus, residents of the zone of estate houses may put up with the noise from the school located in the neighborhood, understanding that they do not have to spend money on daily transportation of their children to school. A change of zoning standards may result in the change of real property value in this area. The value and standard of zones greatly depend on the location of adjoining zone of another type - a commercial or industrial one. If an industrial enterprise is being constructed close to a residential zone, the real property value and qualitative standard of the latter will sharply decrease. That is why such neighborhood is not allowed under zoning.

regulations. And vice versa, a change of undesired adjoining type of use may cause increase in the value of real property and improvement of zone standard.

Another qualitative criterion of the residential zone standard is its close location to center. The concept of a "high" living standard in the city center is different from the high standards in the city suburbs. It is clear that living in a single-family house in the center of a large city is very expensive, and the criteria determining the high standard of the suburbs (low density of development, "private" life style) are not compatible with the city noise, intensive transport and deficit of vacant space. It is evident, that the standard of residential zones in the city center is based on other criteria, such as close location to place of employment, to entertainment and sport facilities, and the parameters of real property are oriented at ensurance of the highest quality of housing itself in combination with minimum requirements to the size of open green space, building setbacks, etc.

All this shows that zoning standards are made of series of compromises between needs and opportunities, between the desire to ensure maximum comfort with low cost and the necessity to take into consideration the restrictions imposed by public interests. That is why zoning standards always reflect the balance of interests of the public and interests of an individual person with regard to real property owned by them.

This standard, expressed in the form of regulations of real property use in this zone, adopted by local community, becomes the law which is mandatory to all. That is how zoning works in the USA.

Is this concept of "zone standard" important for Russian conditions? Yes, it is as important as the concept of "zoning", because zones must be established based on the standards approved for them. Achievement of these standards becomes the purpose of urban development.

Obviously, it is too early to speak about development of final standards for residential zones. But the analysis of housing market and the first experience of development based on tenders conducted in a number of cities, show that we already have some criteria for development of zoning standards. The analysis of development types in Russian cities, presented in Section 2, shows that typological characteristics are rather different. But can we consider them as standards? The answer is "no". Except for the "old city" they reflect the system of socialist land use, not taking into account the factor of land value. In recent years, in the areas where real property market exists, the development is being transformed rapidly and it is only now that these areas come to a certain standard. This is expressed in the increased density, higher scale of buildings and quality of development in the central business and commercial zones of major cities, appearance of zones of commercial activity near transport centers. Hazardous construction "boom" causes sharp changes in the image of close suburbs and transforms small villages into areas of expensive cottage houses (villas). In relatively new districts the factor of land value shows the problem of imbalance between low-quality paneled residential buildings and potentially high value of land occupied by them. The same imbalance can be seen in large polluted

areas occupied by industrial enterprises, while they are more suitable for residential development. The process of transformation is only beginning here and we can speak about zoning standards only with regard to a very distant future.

Another reason for establishment of zoning standards is a growing number of personal cars. The state of parking lots is really poor, there are a lot of unauthorized parking lots in residential areas.

Thus, the qualitative zoning standards are directly connected with their qualitative characteristics. The absence of flexible connection between construction norms and standards and a variety of opportunities for creation of a high-level residential environment is the reason for the fact that many SNiP standards do not conform to rapid changes in the economic activity and urban development, they do not provide solutions to the problems mentioned above and can not be the basis for establishment of zoning standards.

The experience of developing "Land Use and Development Regulations" for some cities, and in particular, for Novgorod and Tver, as well as the analysis of planning projects for several sites in these cities resulted in creation of some approaches to establishment of zoning standards, and showed connection between their qualitative and quantitative characteristics. As in this manual we speak mainly of residential zones, we shall consider quantitative criteria showing differences between zones. These criteria include:

- density of residential development
- minimum size of land parcels
- intensity of land use, etc

4 1 1 Methods of Regulating Density of Residential Development

The basic quantitative criterion of the quality of city environment is an integrated concept of "density" which is expressed in different units: density of population, density of housing stock, density of dwelling units per area unit, etc. All these parameters are interconnected and characterize the number of people or total building area per land unit. Density is one of the most important regulators of land use and establishment of standards. Under market conditions it is important that this characteristic shall be applied not only to functional elements of the city (micro-rayon, etc.) as it is done in SNiPs, but also each land parcel allocated for development. In the framework of residential areas with one and the same density characteristic it is possible to build, for instance, cottages on large parcels that would occupy the whole area or townhouses on small parcels that would leave vacant space for mini-park, satellite parking or a tennis court. In foreign practice, together with density characteristics of residential areas (for instance density of dwelling units per hectare), there exist density characteristics for separate land parcels (for instance, FAR, OSR) in accordance with zoning standards. Table 4 1 1

Density of residential development can be regulated by different means. In this manual we consider only those which are directly connected with the tasks of subdivision, i.e. with determination of parcel area.

Restriction of minimum parcel size This requirement regulates density in zones of single-family and townhouses. This standard means that in creation of land parcels their size may not be less than the one established by Zoning Regulations. Minimum parcel size is established, as a rule, for all permitted types of real property use in these residential areas: kindergartens, schools, mini-parks and other elements. Minimum parcel size may be adopted as the basic criterion for classification of residential zones. For instance, in the USA there exist recommendations according to which residential zones are divided into R-40, R-15, R-11, R-7, R-3, where numbers denote minimum parcel size in this zone. However, minimum parcel size is not equivalent to density of residential development, because first, the actual parcel area is connected with its topography and configuration (shape) and, second, in the same American practice, for instance, a substantial portion (usually 10 to 20 percent) of a parcel may be consumed by street rights-of-way. Besides, it is impossible to know how many single-family parcels can actually be created out of a parcel of a given size until sufficient planning work has been done to sketch out road locations and potential parcel configurations.

We should mention that using only the standard of parcel size (as it is done in SNiP), it may occur that building size may become disproportionally large in comparison with parcel size, what we can already see in modern elite cottage villages. Here we come to the conclusion that it is necessary to establish standards both for physical and relative parameters of development.

Restriction of the ratio of the building area to the parcel area

This method regulates actual density more accurately, but it is less evident for consumers. The parameters characterizing the ratio of the building area to the parcel area make it possible for developer to determine how many "square meters" he will be able to "build" on this parcel so that it would comply with the zone standard.

Depending on the method of calculating the building area, this ratio may be expressed by the following characteristics:

percentage of parcel development - ratio of the area of all buildings located on a parcel to the parcel area (%),

coefficient of the intensity of use of the parcel area - ratio of total apartment area or usable public building area to the parcel area,

FAR (used in the USA) - ratio of the total floor area of all buildings located on a parcel to the parcel area,

OSR (used in the USA) - ratio of the vacant area to the total floor area of all buildings located on the parcel.

These characteristics regulate building parameters and the size of the vacant space and the "occupied" space on the parcel.

Dependence of the building area on the parcel size will be analyzed in Section 4 1 2 1

4 1 2 Principles of Establishing Parcel Parameters

4 1 2 1 Parcel Area

It is necessary to distinguish between components that form the minimum size of individual parcels for one/ two-apartment townhouses or parcels that are commonly used by residents of multi-apartment residential houses. Thus, for a single-family house or a block-apartment, the minimum parcel size is determined by the size of the house itself and the required setbacks. Recommendations for parcel size for single- and two-apartment detached houses and townhouses are shown in SNI P 2 07 01 - 89 Attachment 3*

In the case of a multi-apartment house, a question arises - what should be the parcel size should be and which minimum area should be considered necessary for residents within the boundaries of a land holding? This issue, which is new for our practice, first arose in connection with the formation of condominiums. See Appendix to Volume I

The most suitable size of the area adjoining a building can be determined by use of a parametric characteristic of development - "coefficient of closeness". It is based on inclusion of the following elements of residential area in the parcel area

- passages and pedestrian roads to residential buildings,
- protective green strips,
- play grounds for children,
- recreation facilities for adults,
- accessory sites,
- sport grounds,
- open sites for temporary parking

However, in reality it is impossible to draw all the parcel boundaries in a rectangular form, because different areas for direct use by residents are located within different distance to the building windows, for instance, children playgrounds (0.7 m^2 / person) must be located minimum 12 meters from the building windows, sport grounds for adults (0.1 m^2 / person) - 10 meters, accessory sites (0.1 m^2 / person) - 20 meters, parking lot (0.8 m^2 / person) - 10-15 meters. In real life in zones of multi-apartment buildings, a functional/planning unit of the area is not a single building parcel, but an area occupied by a group of residential buildings. That is why we speak about an area and boundaries of a "model" parcel and about a "model" share of each dweller in the parcel area

We could determine more precisely only the boundaries of the minimum required area which is used for maintenance of the building and includes only the land occupied by the buildings and transport access area (based on fire-protection

standards) Accordingly, on a subdivision plan we should show boundaries of the minimum required area and boundaries of land owned by residents of a group of buildings

The minimum parcel area includes only minimum development area that corresponds to the building type, and the minimum area which provides access to this building (according to fire-protection standards) The recommended parcel area is determined based on the average considerations about good residential environment That is why, parcel area can always be reduced depending on these "average" considerations under local conditions and requirements

Example let us take a 6-section house for 120 apartments that is typical of the 5-storey development The building area of this house is 1,152 square meters, total apartment area - 4,493 square meters The recommended density characteristics are

- maximum coefficient of intensity of land use - 1.2
- minimum share per square meter of the total apartment area - 0.8
- maximum percentage of development - 31

Based on these characteristics, the area of a sample parcel is 3,594 square meters

Let us now calculate the minimum required parcel area, based on the house dimensions and fire protection standards The minimum parcel width includes the building width (12 meters), minimum distance to the passage on the entrance side (5 meters) and the minimum passage width (5.5 meters) and equals 22.5 meters The minimum parcel length includes the building length (96 meters) and the sum of side setbacks (6 meters) and equals 102 meters Thus, the minimum parcel area, required for maintenance of the building, equals 1,295 square meters The rest of the parcel area equals 1,299 square meters and comprises the area of public use The size of this area can be changed according to local conditions and requirements

4.1.2.2 Parcel Proportions

Based on the results of the research studies devoted to a complex of residential houses and published in special editions on spatial structure of development, we recommend that the ratio of the parcel length to the parcel width should be from 1 to 3 Below are the typical proportions of parcels in the development of different types (single-family houses, townhouses and sectional houses)

Parcels for single-family houses the recommended parcel proportions are 1.2 or 1.3, because with these proportions the street and road network can be enlarged and the length of engineering network can be reduced If the parcel area is sufficient, the parcel with the above mentioned proportions can be divided The parcel a square form should be divided along its width, and the parcel of a rectangular form - along its depth There should be appropriate building setbacks from the parcel boundaries to ensure possibility of future division of the parcel

Parcels for townhouses disproportionately long parcels that correspond to the proportions of block-apartments

Parcels for multi-storey sectional houses as we pointed out above, the proportions are related to the internal yard space but not to the parcels of separate houses. In this case, the subdivision plan should be developed simultaneously with the development plan that should be worked out according to the general laws of a spatial structure.

4 1 2 3 Building Setbacks

Minimum parcel size includes minimum development area and minimum building setback area (hereinafter - BS). That is why the development of principles of establishing BS is directly connected with the tasks of subdivision. In the US practice, BS are divided into front, side and rear. These terms are also accepted in the "Land Use and Development Regulations" adopted for some cities.

Front BS - as a rule, coincide with building setback from the red line, because in Russian practice the front parcel boundary usually coincides with the red line.

Side and Rear BS - are connected with the necessity to provide illumination, fire-related excavation, access to the rear yard of a parcel.

In Russian regulatory system the concept of setback from boundary line does not exist (except for accessory structures in the estate-type development), because in a micro-rayon there is no concept of "boundaries of a residential building parcel". There exist only parameters of distance between residential buildings based on fire-protection and insulation requirements. And the insulation requirements are not at all connected with the requirement for efficient land use and must be re-considered or excluded from mandatory standards.

Regardless of the fact that BS are not included into urban development regulatory documents, we can see their dependence on the type and scale of buildings and on local conditions of construction (reconstruction or a vacant area, zone type, etc.)

In the American zoning regulations the BS requirements are differentiated according to zones. In zones with the same building scale, if a larger density of development is required, then setbacks and distances between buildings are reduced. Russian urban development regulations do not contain such approach, because the standards are based on the building scale, which, naturally, adversely affects the intensity of land use. Thus, such a differentiation within the framework of one-scale development should be introduced in local (Russian) standards.

Besides, it is necessary to distinguish between principles of setting BS for different types of parcels.

Individual parcels Minimum individual parcel size in the area of single-family or townhouses is compiled of the minimum development area and the minimum BS area. As a land parcel is designated for use by one family, its setbacks are determined by requirements to isolate the family household and, at the same time, to provide

transport access to main and accessory buildings. The front BS is regulated by local traditions, the side and rear BS - by fire-protection and urban development standards and requirements.

The size of minimum side BS is connected with the type of development. In the estate-type development with a well developed rear yard it is necessary to provide access to it and a minimum side BS of 5 meters. In the single-family house areas with no accessory structures in the rear yard it is possible to provide only a pedestrian passage (width - 1 meter) which together with the building border will constitute a minimum side BS of 2 meters. In town-house development the side parcel boundaries coincide with the axis of inter-apartment walls and, correspondingly, the side BS for ordinary blocks are equal to zero, and for the outside block - the BS is established in accordance with fire-protection standard distance between the side parts of buildings.

Parcels which are commonly used In the regulations for multi-scale sectional buildings it is efficient to establish only the front BS which can be differentiated, for instance, in accordance with street classification, orientation of entrances to buildings. Thus, in the development standards of New York, the front BS for a broad street is 2.5 meters, for a narrow street - 4.5 meters. According to Russian urban construction standards, a house may be located along the red line. But in reality, the minimum front setback is 6 meters. We believe that if there are entrances to the house from the front facade, it is desirable to provide additional local access (private road) within the boundaries of the front parcel. Then the front BS will include the distance between the building wall and the edge of the access road, which constitutes 5 meters for buildings up to 10-storey or 8 meters for buildings over 10-storey (SNiP 2.07.01-89 - Appendix 1) and the standard pass width of 5.5 meters (the same SNiP). Altogether 10.5 meters (buildings up to 10-storey) or 13.5 meters (buildings over 10-storey).

The same parameters may be recommended as minimum rear BS, because in Russian practice, entrances to houses are located, as a rule, on the rear (yard) side.

For example, building setbacks recommended in the USA are shown in Table 4.1.2. Here the side and rear BS are the same. In some regulations different front and side BS standards are established.

The right-of-way setbacks for signs are two times less, from the street axis line - 1.5 times less, from the parcel boundaries - the same.

4.1.3 Parking

Parking includes areas designated for temporary storage of cars. Parking lot size must be flexibly correlated with the density of development. In each city there are business areas where buildings are located on small parcels with a relatively small parking space. Parking space may become insufficient if the building function has changed (for instance if a small shop was transformed into a restaurant). If no parking can be provided on the parcel, other parking lots may be provided on the adjoining parcels. Such places are called satellite disproportionally. The distance between

satellite parking lots and the main entrance to the building is established according to SNiP 2 07 01-89

All zoning districts, except for the over-dense central business district, must be provided with enough parking space for the number of cars which get into in the area. The purpose of this manual is to show approximate standards which should be introduced taking into account real life opportunities. The necessity of establishment of local standards is caused by the fact that in SNiP the list of land uses, for which parking space is required, is extremely restricted, and the issue of providing parking space is very important now.

In residential areas, according to SNiP, it is advisable to provide open parking space for temporary storage of cars based on the 25% of individual car fleet. The SNiP parking standard is 0.8 m² per person. As there is no information in SNiP concerning parking space for visitors, we can propose that it is included in the above mentioned standard. Moscow parking standards for visitors are 25 car-sites per 1 thousand residents.

We'll try to compare this standard with American parking standards. First of all, it is necessary to use the same unit of measurement. In American practice the standard of a number of car-spaces per a dwelling unit is used. Proceeding from the fact that "one parking lot area is no less than 22.5 m², and if the parking lot adjoins the drive-way of streets or roads - no less than 18 m² per car", according to SNiP the standard is 0.04 car-space per person. If we take an average family of 4 people (analogous to American standards), it is 0.16 car-space per a dwelling unit. It is 6 times less than the American standard. Possibly, if we add this number to Russian standards, we'll get the required minimum parking standard in residential development - 0.26 car-space.

Thus, the Russian standard should be increased at least by 2.5. Due to the fact that in Russian regulatory documents this issue of establishing parking standards has not been worked out yet, we shall provide parking standards adopted in the USA for different types of land use in comparison with analogous Russian standards. (See Table 4.1.3). Taking into account that the condition of car fleet is different in different cities, the parking standards should be regulated only by local agencies.

The parking issue is most critical for the central city area. In some US regions, local authorities try to regulate land use in such a way that large institutions requiring large amounts of parking space can not be located in high-density areas.

In the pre-revolution Russia, pavements in front of the buildings must be repaired at the expense of the building owners. Returning to our problems, one of the possible solutions could be allocation of the pavement area to the building owners for lease if the pavement area is enough for parking and pedestrian access. This approach will mostly touch upon the owners of shops or other institutions which are located on the first floor and for which parking space is required.

Parking lot size, the required width of passages, access to parking space and the type of coverage are determined in accordance with the standards 01-89 "Car Maintenance Enterprises"

Table 4 1 1 Density and Dimension Characteristics of Development in New York

Zone		Type of House	Minimum Parcel Area	Maximum FAR	Minimum OSR	Density Dwelling Units per Hectar
Code	Description		sq m			
R1-1	Resident Low Density	one-apt detached	884	0,5	150,0	10
R1-2			530	0,5	150,0	17,5
R2			353	0,5	150,0	27,5
R3-1		1-2 apt detached or complex	353	0,6		105
R3A		1-2 apt detached	221	0,6		92
R4		1-2 apt detached	353	0,9		112
		other	158	0,9		112
R4-1		1-2 apt detached	221	0,9		112
		1-2 apt complex	158	0,9		112
R4A		1-2 apt detached	265	0,9		112
R4Å		1-2 apt detached	221	0,9		112
		1-2 apt complex	158	0,9		112
		1-2 apt townhouse	158	0,9		112
R4 INFILL		1-2 apt detached	353	1,35		162,5
		other	158	1,35		162,5
R5B	1-2 apt detached	221	1,35		162,5	
	complex		1,35		162,5	
	other	158	1,35		162,5	
R5 INFILL	medium density	1-2 apt detached	353	1,65		
		complex	158	1,65		
		other	158	1,65		
R6	high density	multi-appartm	23	2,43	27,5	over 440
R6A		multi-appartm	21	3		480
R7-1		multi-apprtm	19	3,44	15,5	520-565
R7Å		multi-appartm	16	4,0		645
R7Ö		multi-	12,5	5,0		807,5

		apartm				
R8		multi-apartm	5,5-4,0	6,02		737,5-967,9
R9	development of main streets and avenues with higher density	multi-apartm	10	7,52		968-1062
R9A		multi-apartm	9,0	7,52		1112
R9X		multi-apartm	8,0	9,0		1238
R10	highest density	multi-apartm	5,8	10,0 (12,0 maxim for residential developm)		up to 1750
R10A		multi-apprtm	7,0	10,0 (12,0 maxim for residential developm)		1452

Table 3 1 5 Recommended Building Setbacks (USA)

Type of Development	Minimum Distance		
	From Street Right-of-way Line	From Street Center-line	from Parcel Boundary
Residential "estate" houses located within city's planning jurisdiction areas without water supply system or sewage system and not suitable for development of higher density Some types of mobile homes	10,5-12	20-21,5	4,5-6
Residential "estate" houses (except mobile homes) of medium density within areas with public water supply system and sewage system Two-family houses and multi-apartment houses are allowed in planned residential development	9	18	4,5
Single-family houses and residential complexes, townhouses and multi-apartment houses and some types of single-family mobile homes and mobile homes parks	6	15	3
Multi-apartment residential development	6	15	2,5
Central commercial district		9	
Regional commercial, intended for commercial development with lower density than the Central Commercial district Dimensional restrictions in the zone are aimed at stimulation of reconstruction of former single-family houses for commercial use	4,5	14	3
Offices/housing Designed for combining residential development and such institutions and types of business activities as office, researches, services, etc This category can be mainly applied to the areas that lost their vital significance for single-family housing because of hard traffic on adjacent streets or because of other market factors, but it can still be used for multi-apartment housing or offices	4,5	14	4,5
General Commercial Designed for the widest range of commercial activity	12	21,5	4 5
Road services Designed for commercial activity related to on-the-way services (highways between states)	18	27,5	6
Location of enterprises on manufacture, processing, creating,repairing, renovating, painting, cleaning, assembling of goods, merchandise and equipment	9	18	6
Location of enterprises on manufacture, processing, creating,repairing, renovating, painting, cleaning, assembling of goods, merchandise and equipment with fewer restrictions	12	15	8

Table 4 1 3 Parking Requirements

Housing Unit Type	Approximate Parking Requirements (American practice)	SNIP Requirements 2 07 01-89* Appendix 2 Recommended
Single-Family Home	2 spaces per DU and 1 space per rented room	1-2 spaces per DU
Residential Complex	2 spaces per DU, except for 1-2 room apt with only 1 space required	1 space per DU
Townhouse	1,5 spaces per 1-2 room apt, 2 spaces - per 3 and more room apt	1 space per DU
Multi-Apartment House	For persons of low and moderate- -income level or for the elderly - 1 space per DU, the rest require 1 space for each bedroom plus 1 add space for every 4 units in the development	<i>0 16 of space per apartment</i>
Institutions Providing care	3 spaces for every 5 hospital beds, except for institutions for children under 16, when 1 space is required per 3	none
Boarding Houses	1 space per bedroom	none
Temporary residences and hotels providing overnight accommodation	1 space per rented room and 1 additional space per restaurant or any other object	5-7 spaces per every 100 visitors
Home occupations	4 spaces for offices of physicians and dentists, 2 spaces for attorneys, 1 space for all others	none
Sales and rental of goods, merchandise and equipment	1 space per 20 sq m of gross floor area	7-10 spaces per 100 seats in halls or per 100 visitors (in recreation zones), 5-7 spaces per 100 sq m of trade area
Supermarkets	1 space per 15 sq m of gross floor area	the same
Wholesale sales	1 space per 20 sq m of gross floor area	the same
High-volume customer traffic	1 space per 20 sq m of gross floor area	the same
No customer traffic	1 space per 40 sq m of gross floor area	the same
Majority of dollar volume of business done with walk-in trade	1 space per 20 sq m of gross floor area	Per 100 workers 10-20 - of republican weight 5-7 - of local weight
Majority of dollar volume of business not done with walk-in trade	1 space per 40 sq m of gross floor area	the same
Offices and/or rooms of physicians or dentists with gross floor area not exceeding 1000 sq m	1 space per 15 sq m of gross floor area	none
Banks with drive-in windows	1 space per 20 sq m of area within main building plus reservoir land capacity equal to 5 spaces per window (10 spaces if window serves two stations)	Per 100 employees 10-20 - of republican weight 5-7 - of local weight
Operations designed to attract and serve customers or clients on the premises	1 space per 40 sq m of gross floor area	none
Operations designed to attract little or no customers or clients to the premises	1 space for every 2 employees on maximum shift except that if permissible in the commercial districts such uses may provide 1 space per 20 sq m of gross floor area	none
Elementary and intermediate schools	1,75 space per classroom in elementary schools, and 5 spaces per classroom in intermediate schools	none
Professional and technical training institutions	1 space per 10 sq m of gross floor area	10-15 per 100 employees

Institutions of higher learning	1 space per 15 sq m of gross floor area	10-15 per 100 employees
Church/Synagogue	1 space for every 4 seats in the portion of the church building to be used for services plus 1 space for any DU, and 1 space for every 20 sq m of gross floor area designed to be used neither for services nor residential purposes	none
Libraries, museums, clubs	1 space per 10 sq m of gross floor area	10-15 per 100 seats or visitors
Indoor athletic and exercise facilities	1 space for every 3 persons that the facilities are designed to accommodate when fully utilized plus 1 space per 20 sq m of gross floor area used in a manner not susceptible to such calculation	3-5 per 100 seats
Cinemas, stadiums, concert halls	1 space for every 4 seats	10-15 per 100 seats or visitors
Outdoor sport and recreational facilities	1 space for every 20 sq m of gross floor area of indoor premises and 1 space for every 3 persons that the facilities are designed to accommodate when fully utilized	3-5 per 100 seats
Miniature golf courses, skateboard parks, water slides and similar uses	1 space per 30 sq m and 1 space per 20 sq m of gross floor area of building premises	5-7 spaces per 100 visitors
Driving range	1 space per tee and 1 space per 20 sq m in building gross floor area	none
Golf courses	1 space per a hole and 1 space per 20 sq m of gross floor area of a building	none
Horseback riding, stables	1 space per horse that could be kept at the stable when occupied to maximum capacity	none
Automobile and motorcycle racing tracks	1 space per 3 seats	none
Drive-in movie theaters	1 space per speaker outlet	none
Treatment institutions in excess of 1000 sq m of floor area	2 spaces per bed or 1 space per 15 sq m of gross floor area, whichever is greater	2-3 spaces for 100 visits or 3-5 spaces per 100 hospital beds
Medical treatment facilities	3 spaces for every 5 beds Multi-family units developed or sponsored by a public or nonprofit agency for limited income families or the elderly require only 1 space per unit	2-3 spaces for 100 visits or 3-5 spaces per 100 beds
Mental institutions, penal and correctional facilities	1 space per 2 employees on maximum shift	none
Restaurants, bars, nightclubs with no substantial carry-out or delivery service	1 space per 10 sq m of gross floor area	10-15 spaces per 100 seats
Restaurants, bars, nightclubs with carry-out and delivery service	Same as for the previous one plus 1 space per every 4 outdoor seats	10-15 spaces 100 seats
Restaurants, bars, nightclubs with carry-out and delivery service and drive-in service	Same as the previous one plus reservoir lane capacity equal to 5 spaces per drive-in window	10-15 spaces 100 seats
Automobile sales repair and maintenance	1 space per 20 sq m of gross floor area	none
Gas sales	1 space per 20 sq m of gross floor area of building devoted primarily to gas sales operation, plus sufficient parking area to accommodate vehicles at pumps without interfering with other parking spaces	none
Conveyor type car washing	1 space for every 3 employees on	none

	maximum shift plus reservoir capacity equal to five times the capacity of the washing operation	
Self-service type car washing	2 spaces for drying and cleaning purposes per stall and two reservoir spaces in front of each stall	none
Separate storage areas	1 space per 2 employees on maximum shift, but no less than 1 space per 500 sq m of area, devoted to storage (whether inside and outside)	none
Scrap materials salvage yards, junkyards, automobile graveyards	1 space per 20 sq m of gross floor area	none
Services and enterprises related to animals	1 space per 20 sq m of gross floor area	none
Emergency services	1 space per 20 sq m of gross floor area	none
Agricultural, mining, quarrying operations, forestry	1 space for every 2 employees on maximum shift	none
Post office, airport	1 space per 20 sq m of gross floor area	10-15 per 100 passengers
Sanitary landfill	1 space for every 2 employees on maximum shift	none
Civil defense operation, garrisons	1 space per 10 sq m of gross floor area	none
Self-service dry cleaning establishments and laundry	1 space per 20 sq m of gross floor area	7-10 spaces at recreation areas per 100 visitors
Open air markets and horticultural sales	1 space per 100 sq m of lot area used for storage, display, or sales	20-25 spaces per 50 market seats
Funeral Home	1 space per 20 sq m of gross floor area	none
Crematorium	1 space per 20 sq m of gross floor area	none
Nursery schools, day care centers	1 space per 1 employee and 1 space per 20 sq m of gross floor area	none
Bus stations, train station	1 space per 20 sq m of gross floor area	5-10 spaces per 500 passengers coming at rush hour
Commercial greenhouse operations	1 space per 20 sq m of gross floor area	none

* Italic are parameters not specified in the present SNIP but common to Russian practice (for single-family and townhouses) or determined basing on the standards specified in other documents (for multi-apartment units)

4 2 RECOMMENDED STANDARDS OF RESIDENTIAL ZONES

The tables "Standards of Residential Zones" are compiled based on the analysis of the US practice, Russian scientific and research works and parameters proposed by the "Land Use and Development Regulations" for the cities of Tver and Novgorod. These tables are recommendations for cities that are developing local regulatory documents and standards. The proposed parameters may be used in the process of developing local regulatory documents - Land Use and Development Regulations, as well as subdivision plans and regulations.

The classification of residential zones and their standards are based on requirements to the intensity of land use. The intensity of land use may be classified as follows:

low intensity - up to 0.99

medium intensity - 1.0 - 1.49

high intensity - 1.5 and more

Zoning standards are established for usual conditions of construction. In special conditions (reconstruction, unfavorable nature and climate conditions, etc.) the recommended coefficients of intensity of land use may be increased by 20 %.

Table 4 2 1 Standards for the Residential Zone with Low Intensity of Area Use

Type of house	Standards	Recommended value	
		min	max
one or two apartment detached house	Parcel area (sq meters)	400	
	Width of the parcel (meters)	15	
	Depth of the parcel (meters)	15	
	Building setbacks (meters)		
	front	-	
	rear	-	
	side	2	
	Number of floors		3
Building height (meters)		13	
Coefficient of the intensity of land use		0.4	
semi-detached house	Area of the plot (sq meters)	200	
	Width of the parcel (meters)	10	
	Depth of the parcel (meters)	15	
	Building setbacks (meters)		
	front	-	
	rear	-	
	side	2	
	Number of floors		3
Building height (meters)		13	
Coefficient of the intensity of land use		0.9	
townhouse	Parcel area to locate one apartment of the townhouse (sq meters)	250	
	Width of the parcel along the front of the street, passage (meters)		
	ordinary	8	
	corner	10	
	Depth of the parcel (meters)	16	
	Building setbacks (meters)		
	front	-	
	rear	-	
	side (for corner parcels)	1.5	
	Number of floors		3
Building height (meters)		13	
Coefficient of the intensity of land use		0.9	

Table 4 2 2 Standards for the Residential Zone with the Medium Intensity of Land Use

Building Type	Standard	Recommended Value	
		min	max
townhouse	The area of the parcel to locate one apartment of the townhouse (sq meters)	200	
	Width of the parcel along the front of the street, passage (eters)		
	ordinary	8	
	corner	10	
	Depth of the parcel (meters)	16	
	Building setbacks (meters)		
	front	-	
	rear	-	
	side (for corner parcels)	1,5	
	Number of floors		3
Building height (eters)		13	
Coefficient of the intensity of land use		1,0	
Multi apartment house (sectional)	Area of the parcel (sq meters) per 1 sq meter of the total area of the apartments,	0 8	
	Width of the parcel (eters)		
	Depth of the parcel (eters)		
	Building setbacks (meters)		
	front	6	
	rear	10 5	
	side	-	
	Number of floors		5
Building height (eters)		21	
Coefficient of the intensity of land use		1 2	

Table 4 2 3 Standards for the Residential Zone with the High Intensity of Land Use

Type of House	Standard	Recommended value	
		min	max
multi-apartment house (section)	The area of the parcel (sq meters) per 1 (sq meter) of the total apartment area	0 7	
	Parcel width, m		
	Parcel depth, m		
	Building setbacks, m		
	front	6	
	rear	10,5	
	side	-	
Number of stories		9(10)	
Building height, m		35	
Coefficient of the intensity of land use		1 5	
Multi apartment house (sectional)	Area of the parcel (sq meters) per 1 sq meter of the total apartment area	0,5	
	Parcel width m		
	Parcel depth m		
	Building setbacks m		
	front	6	
	rear	13,5	
	side	-	
Number of floors		16	
Height of building (meters)		50	
Coefficient of the intensity of land use		2 0	

PART 5 THE FIRST EXPERIENCE OF SUBDIVISION OF URBAN LAND

5.1 Analysis of Proposals on Land Subdivision Applied in the Process of Re-organization of Residential Districts

The problem of developing subdivision plans which fit in new market conditions has become one of the most critical problems in Russian cities. The first steps in these areas were made by the cities of Novgorod and Tver with respect to re-organization of residential zones of obsolete wooden development.

In most cities land parcels located in these zones have not been privatized. Depending on the city strategy, the reconstruction of these areas can be implemented in two main ways:

1) with "passive" participation of the city - privatization of land parcels - when owners will be able to independently dispose of their real property and sell the whole land parcel or a part of it. The results of such activity can be clearly seen now in the prestigious districts of the suburbs of Moscow. During the last 3-5 years small villages of Moscow suburbs turned into cottage districts built at the expense of investors who had bought, for instance, a part of a land parcel and had built a new house for its owner as payment for the land. This, in its turn, increased the density of development and infrastructure and transport load, which stimulates developers to investing in reconstruction and development of these facilities.

2) with "active" participation of the city - the city takes upon itself all expenses for improvement of infrastructure and relocating the existing residents to other areas, the residents will get a compensation from sale of their land parcels through a tender or an auction.

Which way is more preferable for the city? That depends on many conditions: attractiveness of this site, availability of infrastructure, the condition of residential stock and, most important, the financial resources of the city. It is clear, that the first way will bring quick results only if there will be high demand for land in this area. But it practically has no connection with capital expenses of the city and is based on the "natural" transformation of the city environment.

The second method (in the Russian reality) may result in "violence" and is possible only if a legal mechanism existed for land reservation and expropriation, as well as financial mechanisms for compensation and mortgage. Nevertheless, this method is applicable and even necessary if there are financial resources for implementation of major projects of planning re-organization of land, especially related to removal of industrial enterprises closely located to residential areas, or removal of residential functions from the areas of harmful industrial enterprises.

A development project worked out for Krasnaya Sloboda district in the city of Tver (153.5 ha) is a good example of planning re-organization of land that used both mechanisms. Another example of reconstruction of such areas can be found in the

City of Novgorod, where subdivision projects for the existing districts were developed at the request of Novgorod Administration. Presently they discuss the issue of providing land in ownership in accordance with subdivision plans, the scheme of which has been prepared and is to be submitted for approval.

5 1 1 Novgorod Block 15 and micro-rayon 7

In order to create a clear structure for determining boundaries of each land parcel, experts of Novgorodgrahzdanproyekt (project and design institution) developed new subdivision plans (See Fig 5 1 1). As a result of approval of subdivision projects, it is proposed to sell newly created land parcels (which are not being used at the moment) to new owners, as well as to reorganize (with respect to their size and boundaries) the existing ones so that their present possessors could be registered as owners.

Subdivision projects also include planning tasks of increasing the density of development and using land more effectively. To do this, some blocks are planned so that parcels are divided in two parts: the front - occupied by estate houses located along red lines and the rear - occupied by small orchards. According to subdivision plans, land can be conveyed into ownership but with two restrictions. First, only that part of land which is registered for permanent use, will be provided into ownership, all parcels unregistered or occupied without due authorization will be reserved for construction of a future road to provide access to the rear part of land and to give the owners opportunity to sell those parts to the city so that the city administration could implement its plans for increasing density of development through construction of townhouses. Second, the city will propose to the future owners to sell parts of their land, the size of which will be established by the city. However, implementation of these plans seems doubtful. The right to sell their land may not be restricted in such manner. Most probably, when selling some part of their parcel, owners will prefer to have a new house built for them as compensation for the land. Moreover, if a seller wishes to sell the whole parcel, the buyer will also prefer to buy it as a whole instead of dividing it under the conditions imposed by the city.

We see two approaches to implementation of planning intentions of the city.

The first one: before privatization, the city will reserve the "rear" land and keep the right to dispose of it, but will at the same time provide this land for lease for an agreed upon period prior to the beginning of construction. In this case the right of ownership will be provided for only that part of land where a building is located.

The second approach: all land is provided into ownership under condition that no construction may be conducted in the rear part (a kind of a planning servitude) before a potential developer appears, who is able to build townhouses in that rear part of land, previously having purchased it from its owners. The servitude shall be established for a specific period, and if the city breaks the deadline, the agreement can be terminated and the servitude can be canceled.

We do not know yet, which of these two ways will be chosen by the city.

Thus, the example of Novgorodskı district illustrates two types of land reservation for municipal needs. The first one - reservation in order to build a right-of-way, followed by further taking of some part of land actually used by its owner. The second one - establishment of a planning servitude to implement the city intentions to re-plan areas that are used inefficiently. With respect to both types, it is necessary to develop procedures for reservation, payment of a compensation and establishment of deadlines.

The size of each individual parcel has been preserved, but the shape of each was adjusted, mainly to a rectangular form. The land of small flower gardens located in front of the building facades (which were occupied in the unauthorized manner) has been included in the area of streets and rights-of-way for construction of infrastructure facilities.

The existing parcel boundaries were changed only in the following cases:

- 1) a parcel is smaller than the privatized one, and there is a chance to extend it at the expense of the adjoining one which has excess land,
- 2) parcel area was reduced as a result of establishment of red lines,
- 3) parcel configuration was changed due to technical requirements, but its area was not changed.

The main requirements for subdivision and parameters of parcels occupied by individual and townhouses, proposed by local professionals, in general conform to the standards developed in this manual and are as follows:

- side lines of parcels shall be located at the right-angle to the central street line,
- ratio of parcel depth to its width shall not exceed 3:1 and shall be at least 1:1,
- parcel area for a single-family house shall be at least 400 m².

Parcel area includes minimal parking space - one-car garage per a dwelling unit or one-car parking lot. In general, 20 % of the parcel area is designated for accessory buildings and structures.

One difference between these parameters and those developed in our manual is a maximum restriction (250 m²) of a parcel-module for a block-apartment in three-storey houses. The minimal parcel area is not given, as the existence of very small parcels may lead to the excessive density of development and decrease in its consumer qualities. But in some urban development and economic situations, restriction of a maximum parcel size may be required, if the market is not developed enough to regulate these parameters.

In accordance with local urban development conditions, professionals from Novgorodgrazhdanproject developed requirements to parcels for multi-apartment houses.

- there shall be a setback of 5 meters on a parcel with width of 18-30 along the street,
- there shall be open space of at least 5 meters on both building sides up to the boundaries on a parcel with width of 30 meters along the street

Parameters of parcels proposed by professionals from Novgorodgrazhdanproject are presented in Table 5 1 1

In the residential zone of town and sectional houses with average density of development, the maximum coefficients of development density have been increased slightly in comparison with the recommended standards This can be justified in the development implemented under conditions of reconstruction

Table 5 1 1 Novgorod Parameters of Land and Housing Units According to Zones (under reconstruction)

Housing Unit Type	Minimum Lot Sizes Requirements		Minimum Building Setbacks (meters)				Maximum Building Height		Floor Area Ratio
	lot coverage, sq m	lot width m	front	side	total side	rear	m		
1	2	3	5	6	7	8			
Low intensity residential zone (Æ1)									
Single-Family Homes	400	15	3	2	6	2	13	3	0,5
Residential complex	200	10	0	0	3	0	13	3	0,9
Medium intensity residential zone (Æ2)									
Townhouses	200	10	3	0,5	3	0	15	3	1 13
Multi-family sectional houses	-	-	6	5	10	6	20	5	1,30
High intensity residential zone (Æ2)									
Multi-family sectional houses	-	-	6	5	10	6	30	9	2,00

63

5 1 2 Tver District of “Krasnaya Sloboda”

This district is located close to the city center, its southern part adjoins the river of Volga, and the district has good access to transport network. While it is a potentially attractive area for residential development, at present it has some considerable disadvantages. First location of industrial enterprises that are mostly construction enterprises (area - 40.3 hectares), along the Volga river. The rest of the area is occupied by single-family houses (21.4 hectares) and nine-storey multi-apartment houses in accordance with PDPs (20.7 hectares). There are a school, kindergartens, a polyclinic and other social infrastructure, the green space of 3.2 hectares (See Fig 5 1 2). Further implementation of PDP for this area, aimed at substituting low-scale residential buildings for nine-storey multi-apartment houses, is considered inefficient.

The purpose of the project is to develop a land use plan which envisages different strategies of actions with respect to re-planning of land in the proposed zones, priority order of using financial sources to implement this activities, development of relationship between the city administration, developers and residents with regard to new residential construction and reconstruction, extension of roads and improvement of infrastructure, land subdivision and other proposed actions to develop this area.

According to the project program it is proposed

a) on the first stage of the project

- to summarize the available data obtained from the preliminary analysis of the existing residential stock, engineering, transport and social infrastructure, preliminary scale of re-settlement, data on the ecological condition, condition of soil, etc ,
- to propose variants of the future land use system in the district of “Krasnaya Sloboda” based on the data obtained from the preliminary analysis of the existing situation,
- to discuss these variants with all interested persons, administrative agencies and investors and to choose the most acceptable one,
- to develop a preliminary plan of land use, establishing zones of different functional designation, density characteristics of future development, proposed objects of social infrastructure, and establish the order of priority of actions for project implementation,
- to develop a transport scheme and propose a scheme of subdivision of land into parcels,
- to make preliminary estimation of the project cost based on characteristics of the proposed objects of new construction, taking into account the cost of demolition and resettlement,
- to conduct public hearings and register the approved preliminary scheme of re-panning,

- b) on the second stage of the project
- to determine interests of all participants of the project, financial sources,
- to specify priorities of project implementation and work out a detailed plan of implementing the first stage

The approved detailed plan will include proposals for subdivision of land into lots in order to conduct the first auction or tender in the area proposed to be re-planned for high-density residential development. Revenues from the sale of land lots will be used to finance the first stage of new residential development and preparation of lots on the "released" land.

The most difficult and costly procedure is transformation of the industrial zone into the residential one, because it is connected with removal of industrial enterprises from land that is most suitable for housing (along the embankment of the Volga river). After clearing, filling and improvement, this area will be divided into parcels for future sale of housing, that will be constructed, to reimburse the city's expenses for area improvement and get profit. The process of transformation of this zone will go on rather quickly, taking into account that the value and attractiveness of the area of Krasnaya Sloboda will grow as a result of future improvement.

The economic estimation of the cost of relocating the existing residents to other areas and removing industrial enterprises is one of the basic criteria for choosing ways of urban development of this area.

Alternative 1 According to this alternative of reconstruction of this district, developed by local architects (V Mikrukov and N Kazanskaya), the following is proposed:

- 1) removal of industrial enterprises from the embankment of the Volga-river and further transformation of this district into a green recreation area with sports facilities in it,
- 2) demolition of the existing wooden estate houses and construction of multi-apartment five-storey houses with attics, the existing street and road network will be preserved where possible,
- 3) completion of the existing complex of 5-10-storey paneled houses,
- 4) organization of commercial zones along main pedestrian and transport roads

Thus, this district will include two types of residential zones with different standards:

- a residential zone of medium density of development (houses up to 5 storeys)
- a residential zone of high density of development (houses up to 5-10 storeys)

In this case the first zone will substitute the low-density zone (demolition of 1 or 2-storey houses), and the second one will be created on the basis of the existing multi-storey houses. In accordance with this, the tasks of subdivision in these two zones are

different In the first zone - formation of lots for future sale and construction, in the second zone - determination of boundaries of the existing land holdings, identification of vacant parcels and opportunities of their development Fig 5 1 3

Alternative 2 In contrast to the first one, this alternative proposes to use the most valuable land for construction of cottages and estate-type houses Some part of this area, preserved as a single-family house and cottage zone, will be transformed in a "natural" way - through conveyance of land parcels in ownership of house owners Thus, they will be able to dispose of their parcel - sell it as a whole or a part of it in order to build another house on the parcel Fig 5 1 4

We propose the following stages of implementation of a functional zoning scheme in Krasnaya Sloboda

Stage 1 Begin the removal of industrial enterprises Simultaneously - form a medium-density zone of low-scale town and sectional houses of up to 4 storeys In the north this zone adjoins a zone of individual residential development, in the west - buffer sanitary zone, in the east - zone of multi-storey sectional 5 to 9-storey houses In the south - from the thoroughfare along the Kalinin avenue - it will adjoin recreational zone including a park and social and cultural facilities

Stage 2 Complete the removal of industrial enterprises located along the Volga-river between the Nogin avenue and a projected thoroughfare with a bridge across the Volga-river The former industrial zone will be transformed into a recreational zone which will be the continuation of the Nogin avenue

Stage 3 All industrial enterprises are removed from the area The embankment is created Further, in a more favorable area, a zone of cottage and estate houses is built On the other side of the boulevard - zone of town and sectional houses up to 5 storeys, there will be a zone of transition from 9-storey residential zone to a recreational zone

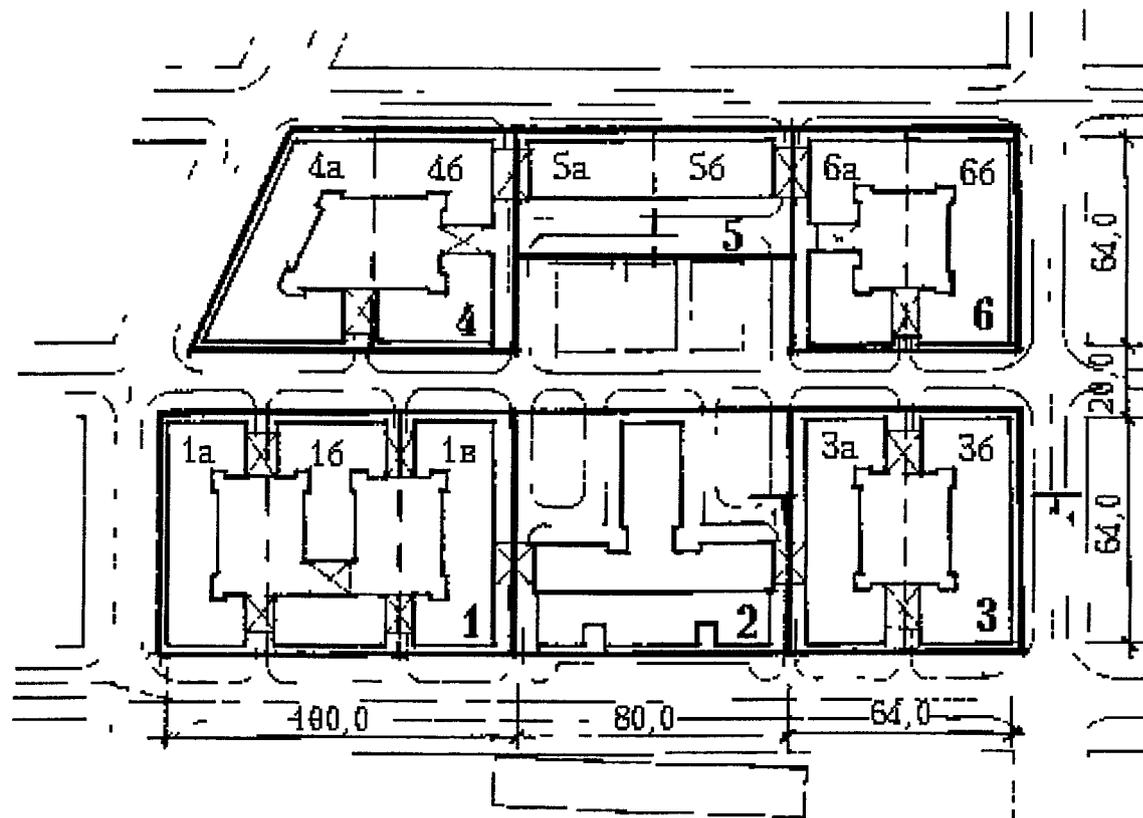
Based on recommendations from "Land Use and Development Regulations of the City of Tver", we compiled Table 5 1 2 "Permitted Parameters of Land Parcels for the City of Tver" In this table the types of zones included in the district of Krasnaya Sloboda are shown in bold The subdivision plan of Krasnaya Sloboda is interesting as a tool of testing these parameters Let us take, for example, land subdivision in the medium-density residential zone (fig 5 1 7) The main type of housing in this case is a multi-apartment 4-storey house with attic One of the variants of the district planning, oriented at maximum density, is shown as separate compact residential blocks with closed yards located along the perimeter of the district Internal road passes along the horizontal axis of the district, and there is a public space with accessory facilities and play grounds in the center of it Underground car parking lots

The total district area is 4 34 hectares Minimum parcel size for houses, shown on the subdivision plat, is 2 73 ha, internal public area - 1 61 hectares Total apartment area is

63 000 m² According to SNiP, one parking lot area should be 0.8 m² per person, i.e. in this district with the population of 3 500 people, the parking area should be 2 800 m² per person. As we pointed out in Section 4.1.3 this standard must be multiplied by 2.5. In this case the proposed area of the underground parking lot should be 8 400 m² or 0.84 hectares. The coefficient of development density shall be calculated including the underground parking lot, i.e. the area of 5.18 hectares. Then the coefficient will be 1.22, which conforms to the standard of 5-storey residential development of medium density (see Section 4.2.) The construction of the underground parking lot made it possible to use the area more efficiently. But here a question arises: what are the limits for using underground (or roof) space for public facilities (parking, sport facilities, etc.) in order to increase density of development? As we have already noted before, the maximum coefficient of development density within the framework of a specific scale, shall correspond to the maximum percentage of development. If we accept that under special conditions (over 20 %) the maximum coefficient of development density for 5-storey development zone is 1.44, then it should correspond to the maximum percentage of development of 36.9%. In this proposal the percentage of development of the district is 37.2%. Thus, we can recommend to make a slight decrease in it in the future work.

The above mentioned density parameters correspond to the permitted parameters for land parcels in Tver, which are shown in Table 5.1.2.

Fig 5 1 5 Proposal for district subdivision in the zone of multi-apartment 4-5 storey houses



No	Area, ha
1	0,64
1a	0,31
1b	0,30
1b	0,31
2	0,52
3	0,41
3a	0,20
3b	0,21
4	0,13
4a	0,25
4b	0,23
5	0,32
5a	0,16
5b	0,16
6	0,41
6a	0,20
6b	0,21

Table 5 1 2 Permitted parameters for land parcels in Tver

Zone	Type of Zone	Minimum parcel Coverage, sq m	Minimum Building Setbacks, m		Maxim Building Height *4		Maxim Coefficient of land use
			front	side	m	# of fls	
R--1	Zone of single-family houses and townhouses						
R-1-1 exist devel	- single-family type houses	200	*1	3* 1**	9,6* 4**	2*	0,67
	- townhouses	120	*1	3*, 1**	9,6* 4**	2*	1,5
R-1-2	- single-family type houses	400	6	3*, 1**	9,6* 4**	2*	0,67
new devel	-townhouses	120	up to 6	3*, 1**	9,6* 4**	2*	1,5
R-2	Zone of Low-rise Multi-Apartment Houses						
	- single-family detached houses	400	*1	3*, 1**	11,6*, 4**	3*	0,94
	- townhouses	120 per 1DU	*1	3*, 1*)	11,6*, 4**	3*	0,94
	- multi-apartment houses	19,3 per 1 person	*1	3*, 1*)	11,6, 4**	3*	0,94
R-3	Zone of 4-5-storey multi-apartment houses						
	- at increasing the density of the existing development	24,8 per 1 person			21	5	0,72
	- development being designed	15,7 per 1 person			21	5	1,15
R4	Zone of 4-12-storey multi-apartment houses						
	- at increasing the density of the existing development	17,3 per person			44	12	1,04
	- development being designed	11,7 per person			44	12	1,54
C C 1-1	Central Commercial Zone City Center Subzone involving the areas connected with large transport structures - railway stations, river port station and air terminal						
	- residential blocks						1,15
C 2	Commercial zone of regional importance - is designated for providing services to people living within zones R 3 and R 4				44	12	
C 3	Commercial zone of local importance					*2	

	is designated for providing services to people living within zones R 1 and R 2						
P 1	Open Spaces Zone - covers city parks, public gardens, boulevards, riparian areas, actively used by people for recreational purposes	*3					
P 2	Zone of natural landscapes - parks groves wooded parks, natural reserves	*4					
P 3	Kariery Recreational Zone - is established in a wooded park with exhausted quarries for recreation purposes						
P 4	"Dacha" Zone - is established for recreation and agricultural cultivation purposes with orientation toward gradual transformation of the zone into zone R 1	400	*1	3* 1**	13,6*		
I 1	Warehouses Zone Zone of enterprises with V grade of hazard level (sanitary zone - 50 meters)						
I 2	Zone of enterprises with IV grade of hazard level (sanitary zone - 100 meters)						
I 3	Zone of enterprises with III grade of hazard level (sanitary zone - 300 meters)						
I 4	Zone of enterprises with II grade of hazard level (sanitary zone - 500 meters)						
IC	Industrial/commercial zone - covers valuable city areas with industrial enterprises in them Established with the aim of further reorientation of industrial enterprises to commercial use						
E	Educational Institutions Zone	*5	*6	*6	36	9	
T	Thoroughfare Zone						
	Special zone - railroad road zone						
	Special zone - military bases, military "towns", firing ranges airfields						
	Cemeteries						
	Open spaces zone - green buffer zones of enterprises, forests agricultural land -						

*1 - according to the established building line

*2 - the height and sizes of service companies buildings indicated in their plans should correspond to development standards for the residential zone for which these commercial zone is being established

*3 - Balance of area % evergreens -67-75 alleys and roads - 10-15 Open sites - 8-12 structures - 5-7

*4 - Balance of area % shrubs and trees and open meadow spaces reservoirs - 93-97 transport network sports- and playgrounds - 2-5 service and maintenance buildings -

*5 - the area of planting trees and shrubs - no less than 40% of the area

*6 - minimum distance between institution buildings and thoroughfares and arterial streets - 50 meters

streets and local roads driveways - 25 meters

* - main building

** - accessory building

Height of buildings is given to the level of flat roof as for sloping roof - it is measured up to the highest point of the roof and is increased to 4 meters if main buildings, and to 3 meters - if accessory buildings

5 2 Analysis of Project Proposals on Subdivision of Vacant Land

5 2 1 Novgorod Pskovski Residential District

According to the scheme of development, land parcels designated for construction of townhouses, are mainly of a rectangular form and can be referred to several types of modules Fig 5 2 1

All module-parcels are grouped into lots Each lot is a parcel with houses made of block-apartments The scheme of joining these block-apartments can be of two types ordinary and cross-type Lots are strips of land, the width of which is 21-48 meters Table 5 2 1 shows parameters of module-parcels which were calculated based on graphic information provided by Novgorodgrazhdnproject

The American zoning documents contain such standards as FAR and the percentage of the parcel area occupied by buildings

$$\text{FAR} = S (\text{total floor area}) / F (\text{parcel})$$

According to recommendations presented in the US Zoning Regulations for Two-storey Townhouse Zone in New-York, FAR is within 0 5 - 1 35 If FAR = 0 5 , the percentage of the area under buildings is 35% If FAR =0 75, the percent is 45%, if FAR = 0 9 - 1 35, the percent is 55%, i e it does not increase If we consider the coefficients of development density shown in Table 1 2 as sufficient for 2-storey town-house development in this district of Novgorod, then the percentage of the area under buildings has been slightly increased, especially in ordinary-type development of blocks "D1" and "B" In order to preserve this value of FAR, we would recommend to increase the scale of buildings with simultaneous decrease of the area of development

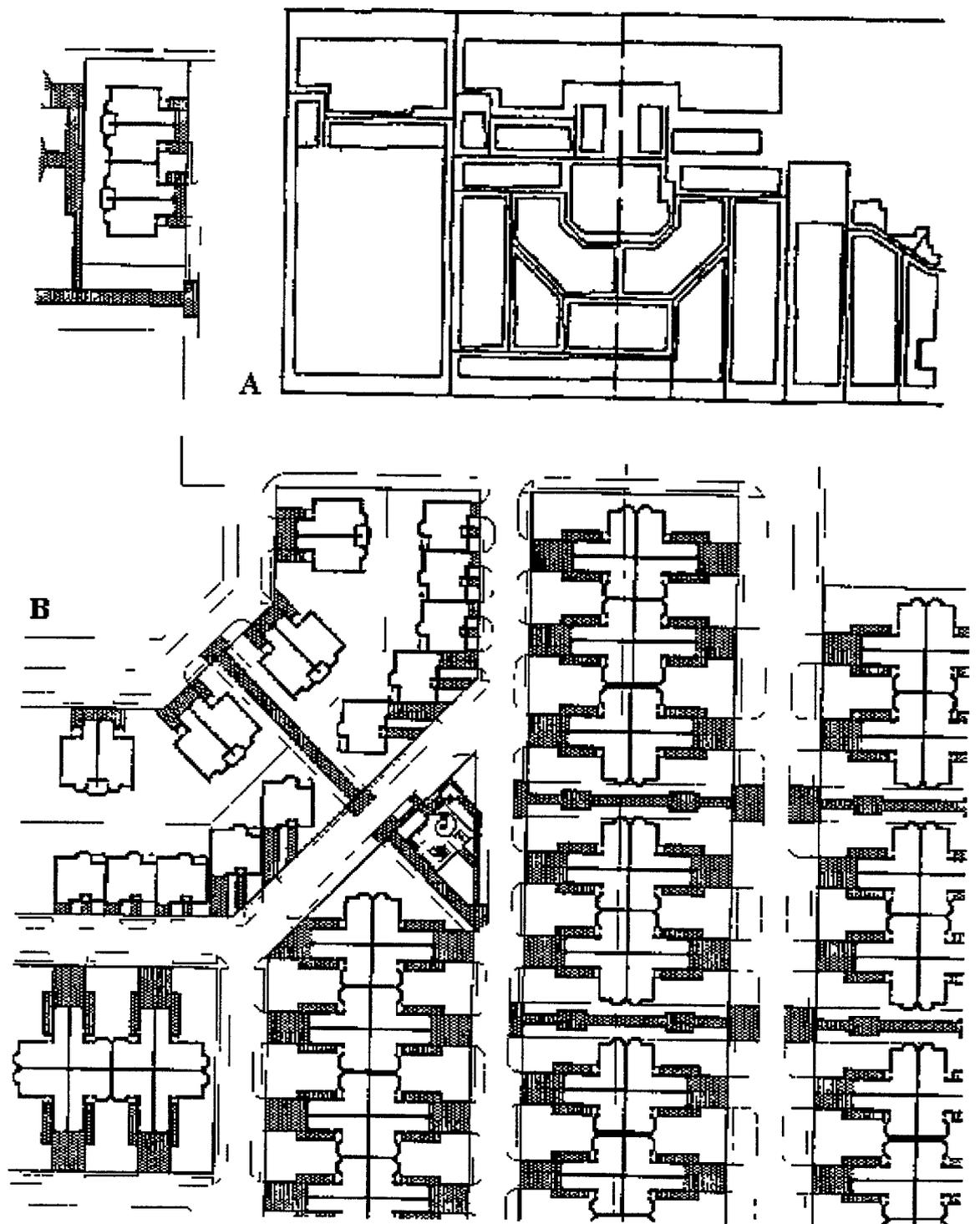


Fig 5 2 1 Novgorod Pskovski residential district

A Scheme of creation of lots

B Part of development

Table 5 1 2 Parameters of Land Parcel in the Pskovski District of Novgorod

Zone/ Type of dwelling unit	Minimal/maximum dimensions of land plots			Building setbacks (eters)				Percent coverage of the parcel area %	Percent of development %	Building height		Coefficient of land use
	area of the plot (sq meters)	width meters	depth meters	from front boundary	from side boundary	total from side boundary	from rear boundary			eters	number of floors	
1	2	3	4	5	6	7	8	9	10	11	12	13
R 3 ordinary block (type D)	250	10,5	24	10	0	0	0	63	40	9	2	0 75
corner block (type C2)	325	13 5	24	10	1 5	1 5	0	50	33	9	2	0 60
ordinary block (type E1)	242	11,5	21	2,5	0	0	6	61	54,7	9	2	1 09
corner block E1 1)	315	15	21	2,5	3,5	3 5	6	47	42,3	9	2	0,85
ordinary block (type B)	204	8,5	24	2 5	0	0	4,5	68	61 7	9	2	1,19
corner block (type A)	264	11	24	2,5	2 5	2,5	5,5	47,3	42	9	2	0 81

74

CONCLUSIONS

Creation of the most favorable climate for investments in real property is now the condition of a successful social-economic development of the city in general

We can formulate **four primary tasks** which the city must solve with respect to provision of conditions attractive for real property investors. These conditions should cover the sphere of property rights to land, sphere of rights and restrictions to development, as well as a complex of organizational and technical actions connected with primary "preparation" of city land to its transfer to developers and adjustment of construction norms and standards to conditions of the city

In general, these tasks are as follows

1 To ensure guaranteed property rights to land that can be used as a pledge in order to get long-term construction loans. Such rights must be provided before the investment process begins, but not upon its completion as it is done now

2 To form real property units, i.e. "prepare" land parcels for their primary transfer. This step involves a series of actions including

- develop (on the city request or with participation of investors) a plan for area re-organization (land planning/subdivision project),
- have the project coordinated and approved by the city,
- prepare and sign an agreement between the city and developer on issues of development of engineering, transport and social infrastructure, on issues of compensation of losses to existing land users, on terms of transfer of "prepared" land to future developers, etc
- provide a financial feasibility study of the project for obtaining a mortgage loan

3 To create a system of restrictions that, on the one hand, will ensure well-being of the urban community and protection of environment, but, on the other hand, will not be too much of a burden for investors. In other words, we speak about creating a balance of public and private interests in urban construction activity. The main characteristic of this system is its openness and predictability for investments, "clearance" of norms and procedures connected with obtaining agreements and construction permits. These issues are regulated by local regulatory document "Land Use and Development Regulations" in the form of legal norms and procedures

4 To adjust the existing construction norms and standards to city conditions in the following ways

- reconsider calculation norms related to provision of social infrastructure, in particular, provision of kindergartens, schools, as well as cultural, service and trade institutions, which location, capacity and number will be mainly regulated by market needs,
- reconsider approaches to norms of engineering infrastructure with division of responsibilities of the city and developer on its provision,

- ensure the required ratio of developed and vacant land in the city, in development of different types, with the purpose to ensure a more effective use of city land and healthy living environment,
- re-calculate and adjust urban construction norms related to ensuring maximum/minimum density characteristics in rayons and micro-rayons, to parameters of land parcels and real property,
- form standards of zone development, i.e. size (maximum/minimum) of real property objects allowed for construction in the corresponding territorial zones of the city. These coefficients must be included into the system of local "Land Use and Development Regulations" or the land subdivision regulations

BASIC TERMS AND DEFINITIONS

Residential townhouse - a multi-family residential building containing two or more dwelling units, each having a direct, ground floor entrance

Apartment - a dwelling unit consisting of one or more rooms and accessory premises (kitchen, toilets, storerooms, etc)

Attic floor - the floor located within the attic space

Block-apartment - a dwelling unit of a residential townhouse

Building - a structure, of more or less permanent construction, having a roof and intended to be used for sheltering people (depending on its functional designation) and for industrial or business activities of various types

Building height (structure height) - the vertical distance from any part of the structure, excluding appurtenances, to the existing or natural grade below

Building setback - the distance between the parcel boundaries and the building wall

City -- (for this manual) means all local self-governance agencies, control and inspectorate agencies that are empowered to represent the interests of the city community and make decisions on issues of urban development and land use control

Construction changes of real property -- activities connected with excavation works, installation of infrastructure lines, as well as with construction, reconstruction and etc implemented on a land parcel

Dwelling unit -- a house or its isolated part having a set of premises to be used as a permanent residence by one family

Density - see Section 4 1 1

Developer - any natural person or legal entity, including local executive and self-governance agencies, or a group of persons acting together that have the right to conduct actions related to changes of real property

Double (complex) house - a building containing two dwelling units, each of them having separate premises and a separate entrance located on the ground floor

Estate residence (single family detached) - a residential house originally designated for one family, containing one dwelling unit and located on a lot (separate land parcel)

Floor - a horizontal part of the building restricted by the floor and the ceiling

Floor area ratio - the ratio of the total floor area permitted on a zoning parcel to the parcel area

Front parcel boundary - boundary on the side of the main building facade

Land parcel (lot) - a part of land surface having fixed boundaries, established location and legal status

Land allocation - allocation (in the manner prescribed by law and in the size established by regulatory documents) of land for construction, use and maintenance of enterprises, buildings and structures

Micro-rayon - structural element of residential development that is not intersected by thoroughfares or arterial streets, within which a complex of social service institutions and enterprises are located, and restricted by "red" lines of arterial and residential streets, passages, pedestrian roads or natural obstacles

Minimum parcel area - the minimum area, width and depth of a parcel permitted by the zoning regulations

Multi-apartment house - a residential house, the apartments of which have exit to common staircases and a common land parcel

Parcel width - the distance between the parcel sides measured in the middle point of the front and the rear sides of the parcel

Parcel depth - the shortest distance between the front parcel line and the rear parcel line

Parcel area - the area of horizontal parcel surface restricted by vertical planes on the front, side and rear boundaries

Parking - a part of the area, designated for transport, that is allocated for permanent use for temporary storage (parking) of cars

Planning organization of land - a project involving layout of streets and infrastructure facilities and subdivision of land into parcels designated for all proposed land use types in newly developed areas

Planning re-organization of land - a project involving re-planning and subdivision (re-subdivision) of the-already-developed areas

Plan of area development - the city (municipal establishment) plans for location of different types of land use in the urban area, as well as territorial extension or reconstruction of urban districts (residential, industrial, recreation, communal and etc)

Real property - (for this manual) land parcel and everything that is inseparably connected with it, including buildings, structures, perennial trees, etc

Red line - boundary of a parcel being developed, that is established in PDPs

Right of land development -the right to implement construction on somebody else's land, pledge or alienate it in any other manner during the period established by the agreement on the right of development (is not established by the Civil Law, but can be applied based on the Development Agreement) A land parcel, located in this zone and designated (according to the urban development plan) for development or (according to the owner's intentions) for construction and reconstruction is the subject of the right of development The right of development can be provided based on the property right or "agreement" right to land

- right of ownership of land, in this case the right of development belongs to the land owner from the time of registration of the right of ownership of land,

- right of long-term lease of land, in this case the right of development is established at the time of registration of land lease agreement, implementation of the right of development is possible within the framework of "improvements" stipulated by the Civil Code,

-the "right to develop land" as such

Satellite parking lot - parking lots on the land adjacent to the main parcel

Sectional house - building consisting of two or more sections

Scale - the number of floors in a building located on the surface When calculating the maximum permitted number of floors, the attic floor is not included provided that its area does not exceed one third of the roof area

Structure - a surface or subsurface construction complex designated for implementation of industrial and business activities, storage of materials and equipment, temporary sheltering of people, transportation of people and cargo

Subdivision - a complex of works for establishment, restoration and marking on the surface the land parcel boundaries, and determination of parcel location and parcel area.

Subdivider (amer) - a person or organization that is implementing land subdivision into parcels

Total floor area - total building area measured according to its outside parameters on each floor

Usable area of a public building - a sum of areas of all premises located in a building except for lift shafts, internal open staircases and ramps

Yard - an open (undeveloped) area on a parcel located between the front, rear, or side walls of a building and the parcel boundaries

Zones - areas within the boundaries of which the permitted land uses and development requirements are established

Zoning standard - characteristics and parameters of land parcels and buildings as well as the list of real property uses permitted within each particular zone

Use of real property - a set of types of designated functional uses of land and buildings located on it

LIST OF THE LITERATURE USED

- 1 SNiP 2 07 01-89 Urban Development Planning and Development of Cities and Settlements Official publication M-1994
- 2 SNiP 2 08 01-89 Residential Buildings Official publication M -1995
- 3 SNiP 2 08 02-89 Public Buildings and Constructions Official publication M-1993
- 4 SNiP2 09 04-87 Administrative and Household Service Buildings Official publication M -1995
- 5 BSN 2-89 Reconstruction and Development of the Formed Districts of St -Petersburg Official publication Committee for Urban Development and Architecture St -P -1992
- 6 BSN 62-91 Planning of Residential Environment Taking into Account Needs of Handicapped Population Groups Official publication M -1994
- 7 MGSN - 1 01-94 Temporary Norms and Standards of Urban Planning and Development in Moscow M -1994
- 8 "Urban Development Legislation in Russia on the Way of Reforms" Afanasieva, Trutnev, Yakubovitch M -1996
- 9 Irkutsk Zoning Project of the City Area - 1996
- 10 Use of Urban Land Foreign and Home Experience Review Information Trutnev 1990
- 11 Novgorod Zoning Project of the City Land -1996
- 12 On New Approaches to Urban Development Standards Davidenko Industrial and Civil Construction -1997, No 3, pages 26-28
- 13 Prospects of Housing Development in the USSR M -1981
- 14 Coefficient of Integrity as a Criterion of Residential Development Conformity to Environment Conditions Chlenova - Izvestia vuzov -Construction and Architecture, 1985, No 1, pages 64-67
- 15 Zoning Project of Pushkinski District St -P - 1996
- 16 Project of Downtown Reconstruction of St -Petersburg Block 130 - 1996
- 17 Recommendations on Planning Experimental Housing Complexes in Different Climate Districts of the Soviet Union -M -1984
- 18 Rational Urban Land Use - Kontorovich, Rivkin -Stroyizdat -1985
- 19 Recommendations on Planning and Development of Residential Districts and Micro-rayons TsNIIP of Urban Development M -1980
- 20 Tver City Zoning Project -1996
- 21 Economic Aspects of Density and Scale of Residential Development - Architectural-Spatial Organization of Residential Development Rivkin Berlin Stroyizdat 1970, pages 72-84
- 22 Architecture Graphic Standard - 1994
- 23 A Unified Development Ordinance Brough - 1985
- 24 Bauentwurfslehre Ernst Neufert - 1991

- 25 Office Planning and Design Desk Reference 1992
- 26 Urban Planning and Design Criteria Joseph de Chiara, Lee Koppelman - 1976
- 27 Zoning Handbook A Guide to New York City Zoning Resolution -1990 NYC DCP 90-37

APPENDIX

RECOMMENDED METHODS TO ESTABLISH PARCEL BOUNDARIES AND PARCEL SIZE IN CONDOMINIUMS CREATED IN AN EXISTING DEVELOPMENT

1 GENERAL PROVISIONS

1 1 These methods should be used to establish parcel boundaries and parcel size in condominiums that include one building or a group of buildings and are created on undeveloped land in blocks or micro-rayons in an existing residential development

1 2 Parcel boundaries and parcel size are established based on current standards for use of residential and/or non-residential premises and surrounding land, technical and sanitary requirements as well as requirements for provision of access to all parts of real property in condominiums

1 3 These methods are based on re-calculation and adjustment of urban development standards for residential development of different types and formed at different times, and establishment of the parcel size depending on the area of residential and non-residential buildings in a condominium, the size of the land share of each homeowner in the common property

1 4 The size of the land share of each homeowner in a condominium is established in proportion to the size of residential and/or non-residential building owned by this homeowner. The parcel size equals the sum of all land shares of all homeowners in a condominium

2 PRINCIPLES FOR ESTABLISHING PARCEL BOUNDARIES AND PARCEL SIZE IN CONDOMINIUMS

2 1 The principles for establishing parcel boundaries and parcel size in condominiums are based on different characteristics and parameters of an existing development that were established in accordance with the construction standards and rules in effect during the time of its formation

2 2 Parcel boundaries and parcel size are established depending on the types of development of different periods

- block development of pre-Soviet period,
- block development of the soviet period (30s - 50s),
- large-scale industrial micro-rayon development (60s - 90s)

2 3 When allocating land in condominiums, the following characteristics and parameters are taken into account

when determining parcel size - standard and actual size of the residential area and its elements in blocks and micro-rayons, residential and non-residential stock, building scale, availability of access to all real property units in a condominium,

when establishing parcel boundaries - types of planning (regular, irregular), types of development (linear, closed with yards, etc), location of vehicular and pedestrian passages to real property, location with respect to red lines and other established boundaries

2.4 In cases where a parcel area includes real property of common use (sports and play grounds, trash collectors and other elements required by standards for residential areas), there will be established a right of their unrestricted use by owners of adjacent parcels (common ownership) or a right of their restricted use (servitude) based on an agreement between neighboring associations

2.5 Parcel boundaries are established along red lines, along the center line of roads, along boundaries of adjacent parcels (if available), along natural boundaries and borders, as well as along the line of allocation of railroads and engineering communication lines if not otherwise established by technical requirements

Parcel boundaries may also coincide with the approved boundaries of historic preservation, water protection and sanitary buffer zones. A change in the boundaries of the above mentioned zones shall not be the basis for changing parcel boundaries in condominiums

3 DETERMINATION OF A NORMATIVE PARCEL SIZE

3.1 A normative parcel size is established as the sum of ideal land shares of homeowners in a condominium

The land share of each homeowner (L) is calculated by multiplying the total area of residential and/or non-residential building (A), owned by a homeowner, by a land share ratio (C) for buildings of different scales (see the table) according to the following formula

$$L = A \times C$$

where L - is the size of the land share of each homeowner, in square meters

A - is total area of residential and/or non-residential premises, in square meters

C - is the land share ratio characterized as the amount of square meters of land per square meter of residential and/or non-residential premises

Land share ratios for buildings of different scales are shown in the table

3.2 In cases when the actual parcel size is smaller than the normative one, the size of each homeowner's land share is determined by dividing the actual parcel area by the number of units owned by a homeowner in proportion to the area of these premises

4 RULES TO ESTABLISH PARCEL BOUNDARIES

4 1 Parcel boundaries are established based on the normative size (see p 3 1) and taking into account the surrounding land actually in use

If the normative parcel size is larger than the actual parcel size, the parcel boundaries are established based on the actual size

If the normative parcel size is smaller than the actual parcel size, the parcel boundaries are established based on the standard size

4 2 All real property units of a condominium, accesses (including those for fire protection service) and passages should be located within parcel boundaries and access to engineering facilities should be provided

The parcel area (apart from area occupied by buildings) may include the following elements of the surrounding land or parts of it

- open temporary parking lots,
- greenery,
- children sports and play grounds, other recreation facilities

4 3 When allocating parcels to neighboring condominiums, a common boundary is established between them if not otherwise stipulated by technical or other requirements No strips or parts of land shall be left between neighboring condominiums, the form and/or size of which is not suitable for construction

4 4 When allocating a parcel of a condominium in which real property units are located with a setback from the red line of no more than 6 meters, the parcel boundary is established along the red line if not otherwise established by technical or other requirements

4 5 In order to provide access to the real property by fire protection service, a passage at least 6 meters wide shall be provided from the street For this purpose, the parcel boundary shall be established with a setback of at least 6 meters from one of the long sides of multi-storey buildings if not otherwise established by technical or other requirements

In pre-revolution blocks, parcel boundaries may coincide with the facade plane and/or "brandmauer" In this case, access to buildings from the street side is provided through the arch or space between the buildings leading to the yard, the size of which should be sufficient for fire protection vehicles

4 7 When establishing parcel boundaries for neighboring condominiums (or their association) that are a single residential entity with a common yard, the whole area is conveyed in common ownership to condominiums without its division, if its size does not exceed the cumulative normative area by more than 10 %

4 8 If the normative parcel size is exceeded by more than 10 %, regardless of the type of development, it may be grounds for allocation of the excess area in the form of a separate parcel if its form and size are sufficient for construction Otherwise, the excess

area is divided between homeowners in equal shares or in proportion to the normative size of each parcel

Homeowners of neighboring condominiums may combine and/or re-distribute their land shares, which are part of the 10 % excess land, for construction and other permitted uses

5 PAYMENT FOR LAND IN CONDOMINIUMS

5.1 The amount of land tax and/or rent taken for a land share of each homeowner may be established by the following formula

$T = R \times L$, where

T - is the amount of land tax and/or rent, in roubles

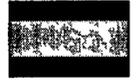
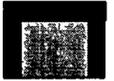
R - is the land tax rate and/or rent rate for the appraised zone of residential site

L - is the size of ideal land share of each homeowner

5.2 Before the size of homeowner land shares is established in a condominium, the amount of land tax and/or rent may be calculated based on a single average land share ratio that equals 1. In this case the size of the ideal land share of each homeowner equals the total area of the residential and/or non-residential premises owned by him

After the rights of ownership of land of homeowners in condominiums are registered, the amount of land tax and/or rent is re-calculated in accordance with the established parcel size and is determined by the formula given in p 5.1

Table Land share ratios per square meter of total apartment area

Planning scheme of development	Building scale																				
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21 and more	
L shaped 	Large-scale industrial development of 30s - 90s																				
Linear shaped 	3,7			1,45				1,15							0,8						
Perimeter U shaped 	2,4			1,15				0,85							0,7						
Standard parameters according to current SNIps	1,7			0,95				0,75							0,6						
Recommended minimum parameters for allocation of new parcels*	2,62	1,90	1,60	1,38	1,24	1,17	1,10	0,96	0,93	0,90	0,87	0,81	0,74	0,72	0,69	0,67	0,66	0,65	0,65	0,64	
	1,5			0,87				0,65							0,5						

*The recommended minimum parameters are calculated based on objective quantitative criteria (wind protection, noise protection, insulation, view corridor) for creating a comfortable residential environment on the surrounding land

AP