

Study of the relationship of processes of socio-economic and spatial development of the city with the help of information-analytical system (IAS) based on PROGNOZ-PLATFORM

ARCHITECTURE
URBAN STUDIES



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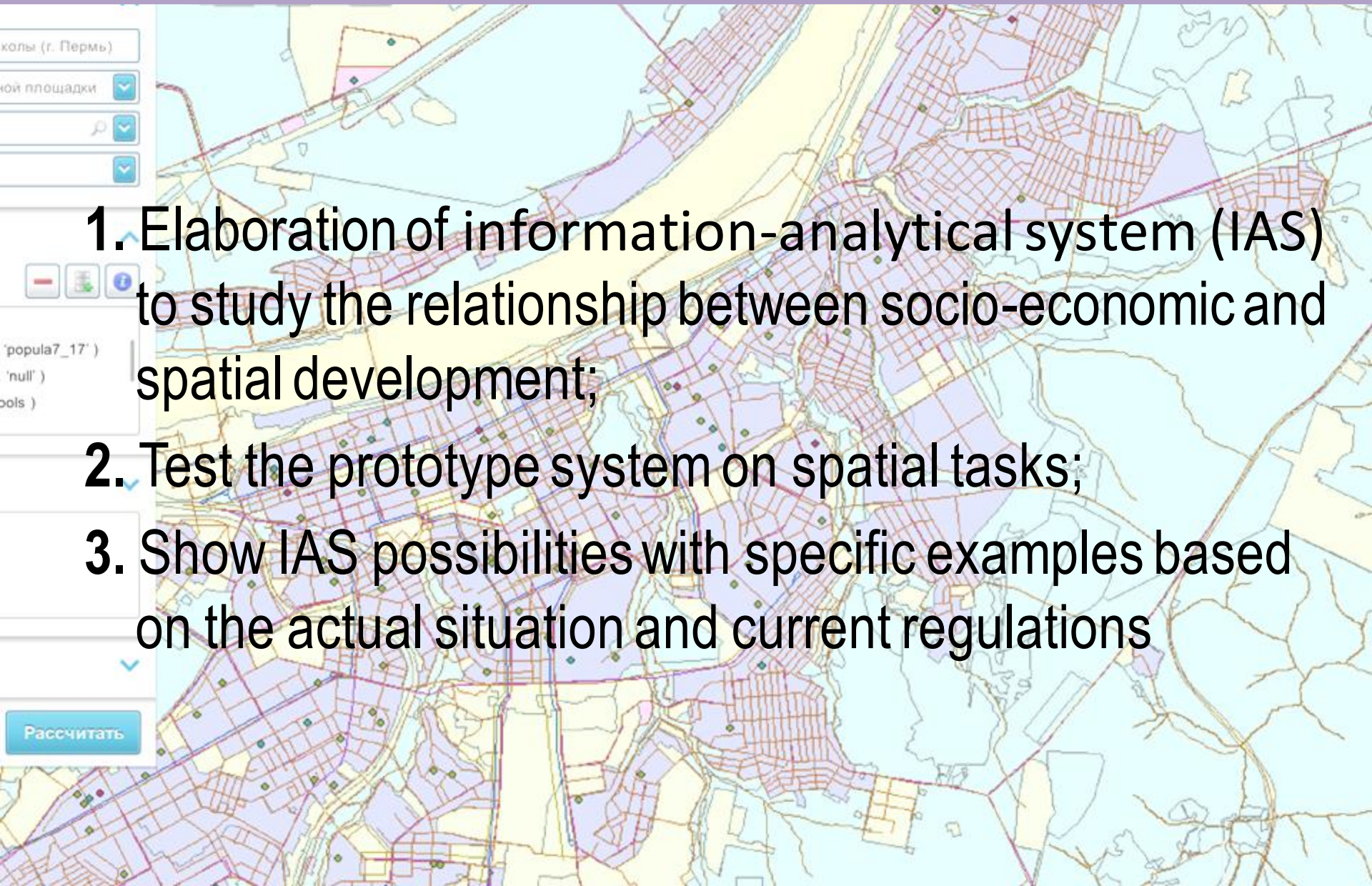
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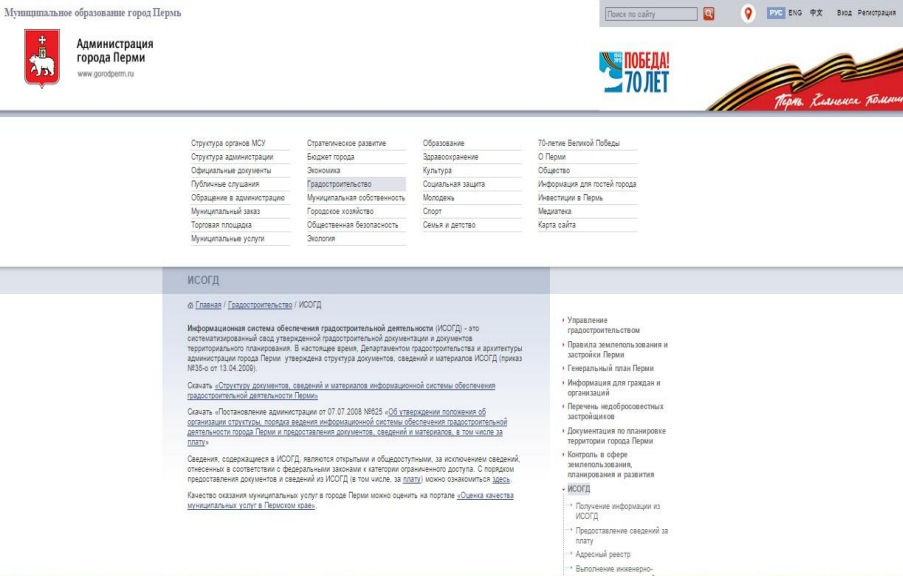
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REAL CORP 2015

PURPOSES

- 
1. Elaboration of information-analytical system (IAS) to study the relationship between socio-economic and spatial development;
 2. Test the prototype system on spatial tasks;
 3. Show IAS possibilities with specific examples based on the actual situation and current regulations



FEATURES:

- It is in all municipalities;
- It is a large database;
- A very small part of the material available in open access.

ISOGD contains following information:

1. Perm land use and development regulations;
2. Regulation lines plans, boundary-setting plans and supporting data (the official title is «Area planning documentation»);
3. State of exploration of natural and man-made conditions materials;
4. The documents and materials of withdrawal and reservation of land for public use;
5. Documents and materials about the built-up and prospective built-up plots;
6. Geodetic and cartographic materials;
7. The documents and materials on the provision of land for purposes not related to construction;
8. Documents and materials of the state real estate cadastre;
9. Documents monitoring processes of urban planning activities;

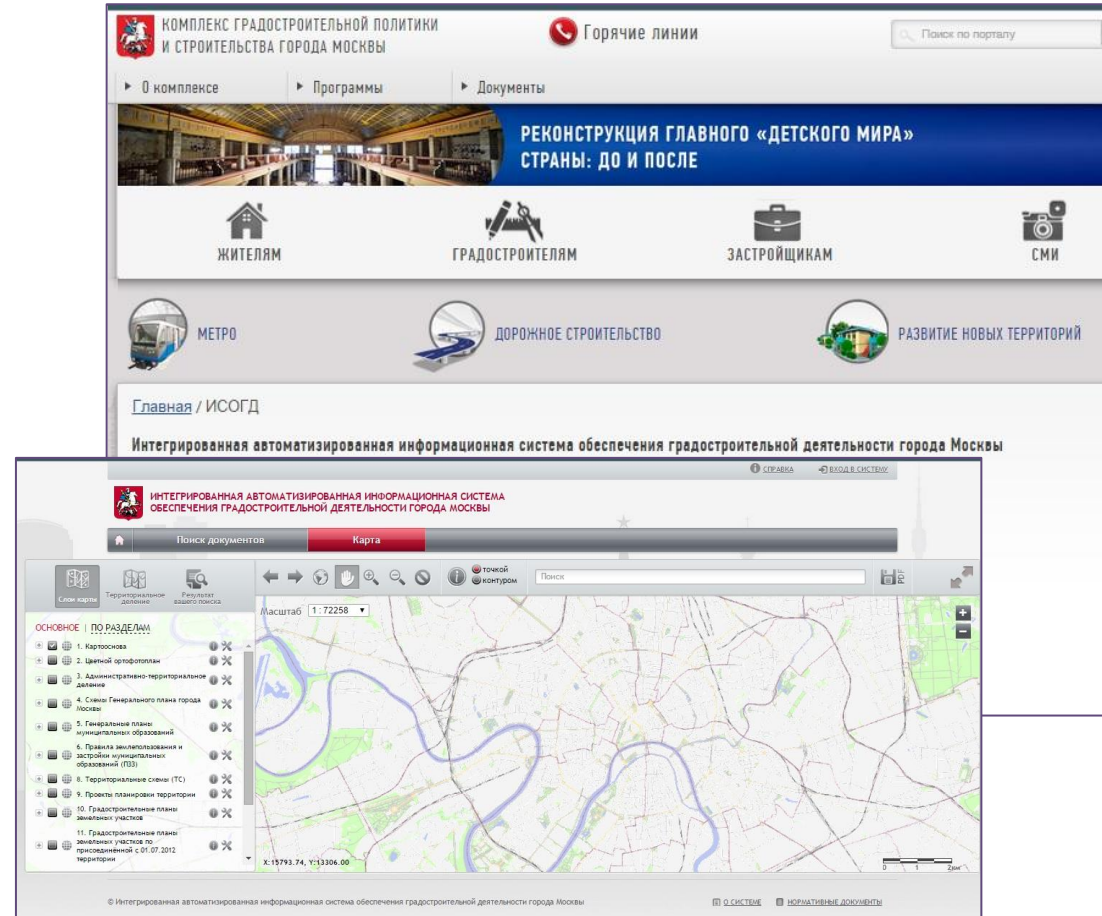
ISOGD IN RUSSIA

ISOGD used in 2 directions:

1. Storing and monitoring information of urban development plans, that was issued to developers;
2. The inventory of land plots, that was registered in the cadastre, in order to establish land tax.

This huge database isn't use to analyze the territory development

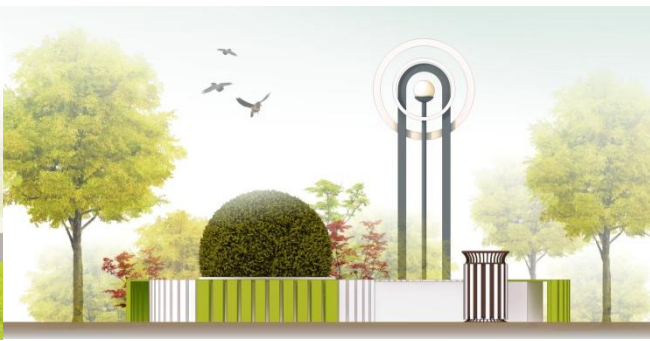
IAS allows to use this data in analytical research



ISOGD - Russian information system for urban development

PARAMETRIC MODEL FOR PERM MASTER PLAN

		Городской центр	Комсомольский проспе	Улица Ленина (Запад)	Разгуляй	Крисанова-Окулова	Революции-Островского	Городские горки	ДК Ленина	Порт Пермь
СТН		A	B1	B2	B3	B4	B5	B6	B7	B8
СТН_старый		A	B1	B2	B3	B4	B5	B6	B7	B8
		1,97%	2,04%	2,80%	0,43%	1,65%	1,15%	2,70%	0,28%	0,00%
Population	pers.	18 922	19 530	26 877	4 142	15 781	10 985	25 840	2 727	0
No data in the address register	pers.	157	162	223	34	131	91	214	23	0
Population living in non-residential TSP	pers.	14	1	537	331	559	0	938	0	0
Population living in residential TSP	pers.	0	0	0	0	0	0	0	0	0
Number of school-age population	pers.	1 761	1 536	2 020	384	1 297	857	2 246	266	0
No data in the address register for schools	pers.	14	15	21	3	12	8	20	2	0
Population living in TSP non-residential schools	pers.	0	0	59	39	19	1	66	0	0
Population living in TSP residential schools	pers.	0	0	0	0	0	0	0	0	0
Population of pre-school age	pers.	618	605	828	176	595	371	951	106	0
No data in the address register for pre-schools	pers.	6	7	9	1	5	4	9	1	0
Population living in TSP non-residential pre-schools	pers.	0	0	28	22	12				



NEW LYADY MICRODISTRICT

ЭКСПЛИКАЦИЯ

1. Спортивный центр
2. Школа
3. Детский сад
4. Досуговый центр
5. Поликлиника
6. Рыночная площадь
7. Ж/Д станция
8. Парк им. Кислицына
9. Детский парк
10. Линейный парк
11. Малое общественное пространство
12. Часовня



Реконструкция железнодорожного узла и обустройство новой станции



Реконструкция и расширение здания школы с инженерными классами, мастерскими и лабораториями с увеличением количества учащихся до 1365

Сохранение существующей усадебной застройки

Развитие многопрофильных учреждений на базе обновленного досугового центра



Преобразованный парк им. Кислицына с новым прудом. Парк предлагает тихий отдых, массовые мероприятия, площадки для игр детей разного возраста.

Административно-офисные помещения с размещением технопарка "Новый Звездный", суммарная площадь коммерческой застройки - 30,7 тыс. кв.м

Технопарк*

Инженерная школа*

Возвращение зданию по ул. Мира, 7 функции детского сада

Бизнес-Инкубатор*

Строительство таунхаусов на 80 семей

Перенос часовни с бывшей территории поликлиники на новое место - в парк им. Кислицына

Строительство нового спортивного комплекса «Протон» с теннисными кортами, стадионом и бассейном

Сеть озелененных пространств включает пешеходный бульвар и парковые зоны: Линейный парк вдоль ул. 40-летия Победы, Мемориальный сквер.

Проект предусматривает

Information-analytical system
Management spatial development of the city

Home page

Data

Monitoring

Analytics

Modeling

Help

DEVELOPMENT PLAN AND BOUNDARY-SETTING PLAN BASIC PARAMETERS OF NOVYE LYADY MICRODISTRICT

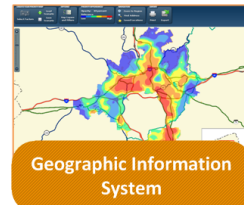
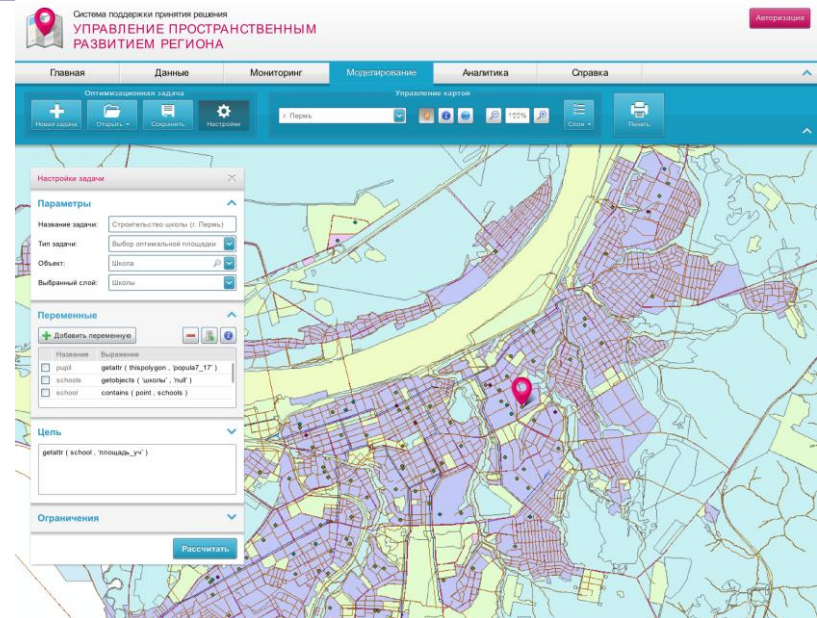
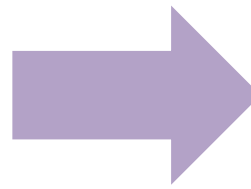
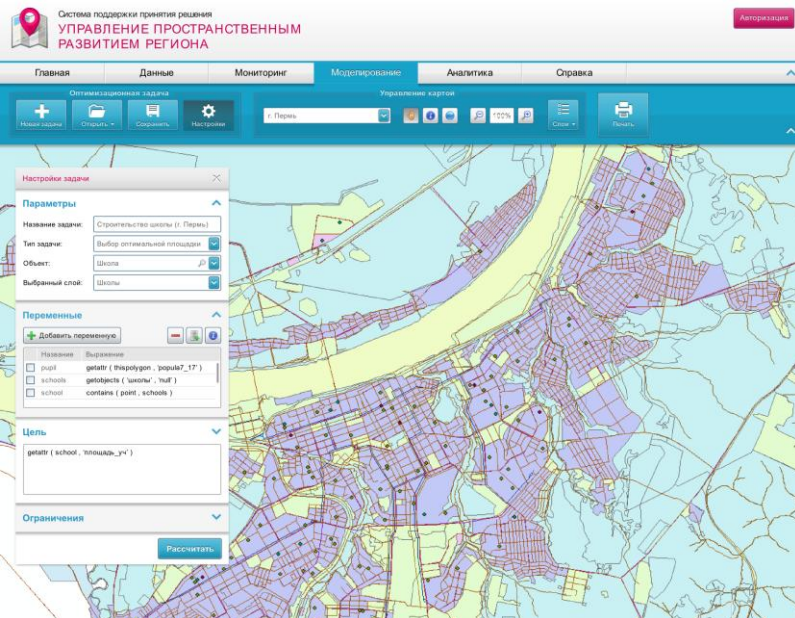
1. Basic parameters for implementation until 2020

Planned construction types	Units	Indicator
Housing	sq.m	49688
Social Infrastructure	sq.m	4536
Commercial and administrative	sq.m	5191
Existing streets reconstruction	sq.m	31388
New streets construction	m	1874
Site improvement	sq.m	52000
Streets improvement	m	6380

2. Expected population

Parameter	Units	Value
Population	p.	15164
Population density	p/ha	298
Preschool age population	p.	531
School age population	p.	1365
Quantity of flats	un.	4313

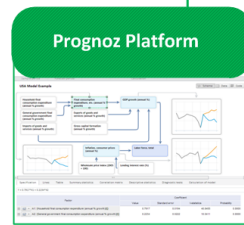




Maps and tools for working with maps



Modeling and forecasting tools



- Socio-economic statistics
- Forecasts for the development of territories
- Information system for urban planning
- Legal and regulatory framework of urban planning

- Results of solving optimization problems (using spatial models)
- Recommendations for the placement of objects in an urban environment

STUDY OF PUBLIC PARKING LOTS IN THE PERM CITY

The problem is solving for large shopping center, which is planning to build in the Perm central district.

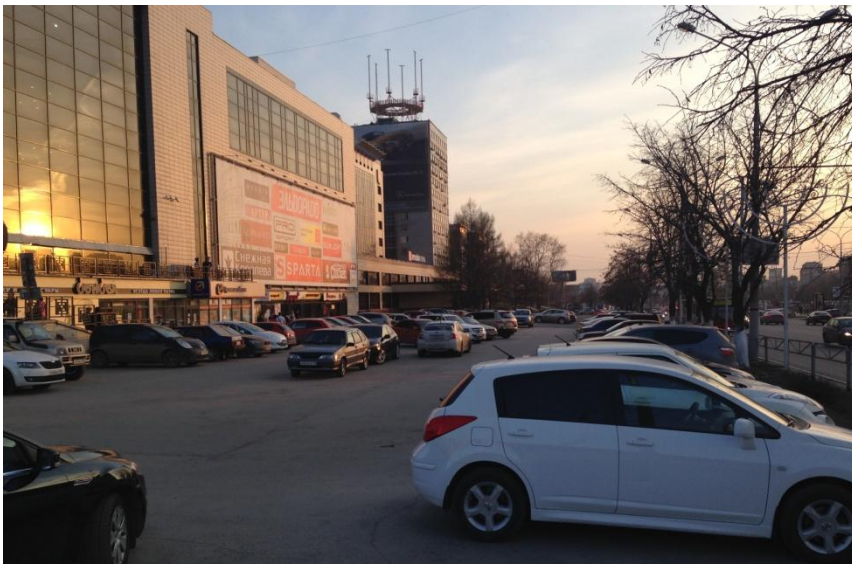
Formulation of the problem :

Calculation of number of cars, generated by constructing of new shopping center.
Prognosis of the impact on the urban environment.



STUDY OF PUBLIC PARKING LOTS IN THE PERM CITY

1. finding of the land plot on the IAS map;
2. entering building parameters;
3. obtaining calculation results.





CALCULATION OF THE REQUIRED NUMBER OF PARKING SPACES in the central part of the city of Perm for the construction of a shopping center

STEP 1 - Selection of a land plot

[STEP 2 - Enter parameters of building](#)

[STEP 3 -The calculation results](#)

LAND CHARACTERISTICS

Plot area	1.63 ha
Functional zoning	STN-A
Cadastral number	59:01:4410048:20
Territorial zoning	Central social, business and commercial areas
Land use type	Main Auxiliary Conditionally permitted



Data source - Information system for urban development

NEXT STEP



CALCULATION OF THE REQUIRED NUMBER OF PARKING SPACES in the central part of the city of Perm for the construction of a shopping center

[STEP 1 - Selection of a land plot](#)

STEP 2 - Enter parameters of building

[STEP 3 -The calculation results](#)

RETAIL SPACE PARAMETERS

Selling space: sq.m.

Area of the first floor: sq.m.

CAR PARKING PARAMETERS

Parking type: ground underground

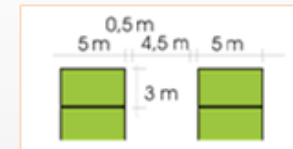
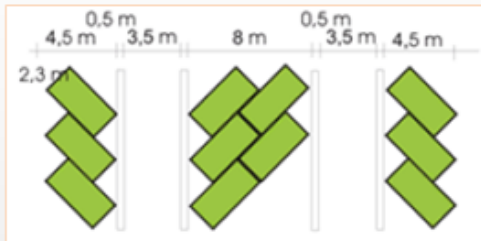
Percentage of car categories: regular car truck

Placement of cars in the parking lot:

at an angle (45 or 60 degrees)

transverse

transverse with narrow driveways



PREVIOUS STEP

CALCULATE



CALCULATION OF THE REQUIRED NUMBER OF PARKING SPACES in the central part of the city of Perm for the construction of a shopping center

[STEP 1 - Selection of a land plot](#)

[STEP 2 - Enter parameters of building](#)

STEP 3 -The calculation results

PLOT INDICATORS

Necessary parking area sq.m.

Number of parking spaces u.

Can the plot accept the required number of cars?

MAP OF THE LAND PLOT



IMPACT ON THE URBAN ENVIRONMENT

Number of parking spaces in the street network u.

Number of parking spaces generated by surrounding buildings (residential and commercial) u.

Number of parking spaces in the yards u.

Number of parking spaces generated by new trade development u.

SUMMARY

Existing number of parking spaces u.

Necessary number of parking spaces u.

Deficit / Surplus u.

SAVE

CONCLUSION

WHAT WE HAVE



WHAT WE WANT

1. IAS work and results of analytical calculations were reported to the Administration of Perm and the Perm region
2. Administration set a new task for us to analyze and optimize the placement of public and private sports facilities for the implementation of the federal program for the development of sports in Russia
3. Now the software tool can be used for all urban problems associated with urban planning regulations on the federal and local level and optimize the placement of social facilities in accordance with these standards
4. The long-term task - develop an algorithm relationship between socio-economic and spatial development of the city



THANK YOU FOR YOUR ATTENTION!


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