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MULTI-STOREY PARKING GARAGES IN A TOWN-PLANNING ENVIRONMENT

The question about organization of constant and temporary car storage places is examined in the article. The expediency of different multilevel parking types application is analysed, and the problem of their rational placing in the existing housing development is also considered.

Key words: multilevel parking, town-planning, motorization level, standing cars, lack of parking places, dwelling districts

Problem rising. The considerable increase of cars amount in the last few years grew into an obvious problem which attracts more and more attention. This problem requires an immediate decision, because there are a lot of complications connected with it:

- decreasing of public transport importance;
- traffic jams on street and road networks, large expenditures on their reconstruction and development;
- the growth of the exhaust-gass toxicity level because of the variable mode of engine operation;
- shortage of places for standing cars in the points of interests concentration, in densely built-up dwelling districts.

The unorganized parking reduces a carrying capacity of roads and sharply worsens an emergency situation. The problem of the cars spontaneously abandoned on the sides of roads and sidewalks of streets is especially meaningful. Courts and near-house territories grew into parkings, densely filled by cars. It does not only create inconveniences, but also causes serious problems, as obstructs fire-engine, ambulance and carrying garbage vehicles passage.

On a current stage of motorization development in the cities of Ukraine, the question about territories for temporary and permanent car storage is rather sharp. The quantity of cars grows faster than the number of places for their storage.

Aim of the work. It is necessary to develop rational ways of passenger car parking organization in the conditions of existent building, considering the new economy features in the cities of Ukraine. The lack of publications in this direction determines the actuality of this article and its purpose.

The analysis of publications. In town-planning practice the great number of researches, scientific conferences, normative documents, project developments are devoted to the question of parking organization. Most thoroughly this question was considered by the following researchers: V.P. Adomavichus, V.V. Sheshtokas, E. Golubev, E.M. Lobanov, B. Andersen, A.V. Sigaev, V.A. Cherepanov and others. However there are quite a lot of unsolved questions.

The main part. At the present time a single normative-methodical base which would allow to determine admission of parking organization on a street-travelling network and to regulate their parameters is actually absent. As a result even organized parking, including paid ones, in most of cases take place without appropriate feasibility study that leads to lowering of street-travelling network carrying capacity, to growth of road accident amount, and increases the delays of transport vehicles [5].

Multilevel parkings construction is uniquely effective method, which allows to decide the problem of great number of motor transport storage on the limited area. They can contain from a few hundreds to a few thousand cars. There are many variations of multilevel parkings: aboveground, underground and ground-underground. They can be found in a separate standing building or to be attached to the blank walls of building [4]. For the car entrance there can be arranged rectilinear or curvilinear ramps, semiramps, sloping floors, elevator lifts, mechanized and automated lifts and manipulators.

In spite of the fact that creation of the opened parking places is the most inexpensive method of the problem solving, it can not be general. The growing deficit of necessary, free from buildings areas is felt practically everywhere, what is compelling to search for new, frequently untraditional decisions. So, in the same district the opened car parkings can be complemented with the series of the separately located underground garages.

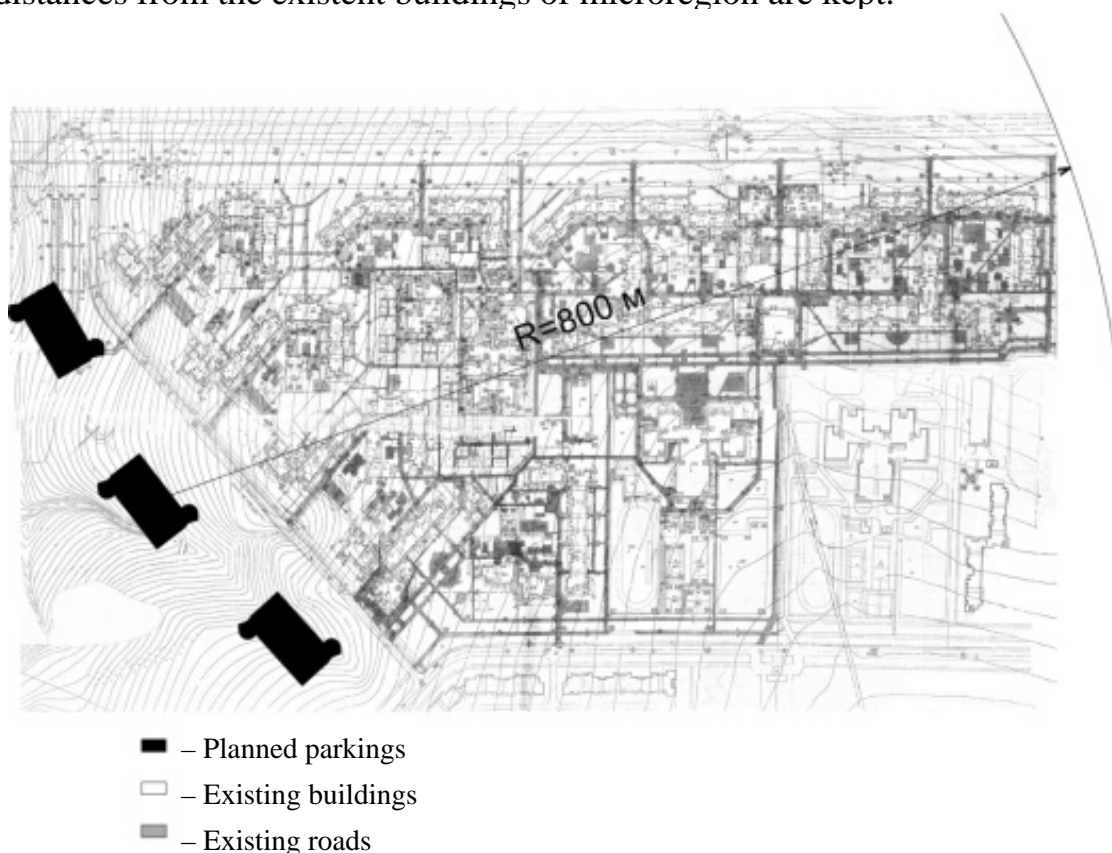
The construction of underground parking place is considerably more expensive, because of the necessity of implementation of deep foundations, retaining walls, coverages strengthening, the creation of drainage in the parking roof, the ventilation implementation and so on. In the case of the high bedding of groundwater it is necessary to create different types of drainage, pumpings stations etc. Due to it the cost of car-place is increased. The most rational variant is building of aboveground parking with the active partnership of a city government. Are of interest decision on the device of parkings in Moscow, where an interest-free credit is selected on their building, and a city undertakes the device of off-site engineerings communications. It one of the most successful and perspective methods of parking places lack problem decision and of useful territory by garage boxes blocking decision.

The construction of multilevel parkings in housing estates will allow to unload courts, that will considerably improve the situation with the well-town planning of courtyards.

On an example of micro-district Vostochnyi-2 of Kryvyi Rih city it is suggested to consider the system of multilevel parking complex location. According to norms [7], multilevel garages must be located mainly in a communal area, on a periphery of urban residential districts, on intermain territories or within their limits, on areas, which are remote from places, intended for the children games and the rest of population.

According to the level of motorization (146 cars for 1000 habitants) and amount of habitants of micro-district (6000), it is necessary to organize places for 900 cars (because, according to norms, the places for permanent automobile storage must be provided for 100% of habitants).

According to the present scheme of an architectural-planning organization of territory the location of this garage complex is determined on periphery of the residential area Vostochnyi-2 (pic. 1). All the necessary access roads, the connection with a transport and engineering infrastructure are provided, the necessary radius of microdistrict maintenance (800 m) is also taken into consideration, all normative distances from the existent buildings of microregion are kept.



Pic. 1. The architectural planning scheme of the territory organization

It is assumed to design aboveground, 4-storey car parking of opened and manege type. It's organization will help to decide the range of problems: to unload the near-house territories from cars, to clean the courtyard territories from unauthorized and non-aesthetic garage boxings, to provide the car safety and so on.

Conclusions. The placement of standing automobiles is one of the most difficult problems of a modern transport service, and possibly, of a whole town-planning. Its decision is expensive, requires large territories and considerable volumes of reconstruction works.

The increase of number of cars requires the new town-planning decisions about organization, and the placement of garages and parkings. Standing cars are occupying more and more territories in the service centers and residential areas. The reality, turned in the future, is the organization garages of different destination, multistory aboveground and underground parkings, located in all boroughs [1]. The questions of standing cars placement are decided on the different stages of the town-planning projecting. They are rather difficult, because require considerable expenses, associated with the problems of environment, and also with the sociological, power and aesthetic aspects of town-planning. Because of the increase of number of equipment for standing cars there is some changing of town-planning ideas. Progressive country and foreign experience shows that there are a lot of possibilities for this new task decision.

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Аннотация

В статье рассматривается вопрос организации мест постоянного и временного хранения стоящих автомобилей. Исследована целесообразность применения различных типов многоуровневых паркингов, а также их рационального размещения в сложившейся жилой застройке.

Ключевые слова: многоуровневый паркинг, уровень автомобилизации, стоящие автомобили, недостаточность мест паркирования, микрорайон.

Анотація

В статті розглянуто питання організації місць постійного та тимчасового зберігання стоячих автомобілів. Досліджено доцільність використання різноманітних типів багаторівневих паркінгів, а також їх раціонального розміщення в існуючій житловій забудові.

Ключові слова: багаторівневий паркінг, рівень автомобілізації, стоячі автомобілі, недостатність місць паркування, микрорайон.

Annotation.

The question about organization of constant and temporary car storage places is examined in the article. The expediency of different multilevel parking types application is analysed, and the problem of their rational placing in the existing housing development is also considered.

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