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ASSESSMENT OF TRAFFIC NOISE LEVEL

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Annotation
This article provides recommendations for improving environmental protection along highways. Environmental protection works aimed at preserving both organic nature - flora and fauna, and inorganic - soil cover, atmosphere, as well as assessing the level of traffic noise.

Keywords: environmental protection, traffic noise, human, green spaces, street landscaping, soil erosion.

Introduction

In modern conditions of rapid development of all types of human activity, the problem of environmental protection and natural resources is very acute. Motorization and the construction of highways have a negative impact on the environment. Therefore, the issues of environmental protection and rational use of natural resources should be given great attention.

Environmental protection works include a system of organizational and technical measures aimed at preserving both organic nature - flora and fauna, and inorganic - soil cover, atmosphere, hydrosphere, lithosphere.

Ignoring the requirements of environmental protection during the construction or operation of highways can lead to a violation of the ecological balance, the appearance of soil erosion, disturbance of the landscape of the area, waterlogging of the roadside area [1].

When examining existing highways, special teams are organized to assess compliance with environmental protection requirements.

The main tasks of these brigades are to assess the level of traffic noise and its compliance with the regulatory noise level on a particular road section; assess the degree of gas contamination and smoke; and control the work to combat soil erosion, for the correct use of land, water, and forests by road services, for compliance with existing rules and regulations on land reclamation, to prevent water pollution, and to preserve wildlife.

At the preparatory stage of the survey, first of all, there are being studied documents reflecting the environmental protection work carried out on the road, then establishing normative values for the traffic noise level for specific sections of the road, finding out lists of enterprises whose territory is adjacent to the locations of recreation centers and sanatoriums, hospitals, schools, studying reserves, quarries, asphalt, and reinforced concrete plants, repair bases, etc., as well as the locations of agricultural land and crops that are grown on them.

In addition, data are collected on the direction and strength of prevailing winds, the state of rivers, and reservoirs. Brigades should also establish contacts with the state control bodies for environmental

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protection in the area of the road location. During the field period, the level of traffic noise and gas pollution is measured, and the roadside lane is inspected.

Particular attention is paid to assessing the level of traffic noise. As a result of constant, round-the-clock exposure to noise, the nervous tension of residents of roadside settlements increases, labor productivity decreases. The impact of noise is reflected in the deterioration of their health.

Transport noise is normalized by an equivalent sound level measured in decibels (dB A). The acceptable level is the level of traffic noise, the effect of which for a long time does not cause changes in the physiological functions that are most sensitive to noise (nervous and cardiovascular system, hearing condition, subjective well-being).

In the premises of residential buildings, hospitals, recreation areas, the calculated sound level *L* should not exceed the following values, dB A:

Wards of hospitals and sanatoriums, operating rooms.....	2
Living rooms:	
Apartments	30
Student dormitories	35
Territories of hospitals, sanatoriums directly adjacent to the building.....	35
Territories are adjacent to residential buildings	45
Working rooms of design organizations and research institutes.....	50
Halls of airports and train stations	60

The calculated level of traffic noise in areas adjacent to highways is measured at a distance of 7.5 m from the axis of the nearest lane at a height of 1.2 m from the level of the carriageway [2].

Protection of roads and their structural elements from the effects of adverse weather and climatic factors protection of territories adjacent to the road from traffic pollution and protection from noise is the creation of elements of landscaping and architectural and artistic design of the road, as well as providing visual orientation of drivers [3]. All these three tasks serve a single purpose - the creation and maintenance of tidy and comfortable conditions for road users and residents of the territories adjacent to the road

Green spaces are an indispensable element of city streets. First of all, plantings have architectural and decorative significance, decorating streets and creating beautiful ensembles together with buildings and individual structures. The importance of green spaces on city squares and embankments, on main and residential streets, is especially great. On the street, green spaces are designed and arranged in the form of ordinary tree planting on specially allocated strips or in holes, strips of shrubs, and lawns with or without trees. On wide streets, green spaces create boulevards and alleys.

Of particular importance are green spaces when using them as dividing strips between roadways, sidewalks, as well as buildings and other elements of the street. In addressing the issues of organization and safety of traffic and pedestrians, green space strips are essential. Areas of plantings are also used for walking and recreation.

The width of the strips of green spaces is taken depending on the purpose and type of plantings.

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The dimensions of the holes on the sidewalks are accepted: round — with a diameter of " at least 2 m and square - at least 2 x 2 m.
The distance between trees in ordinary plantings is from 2.5 to 6 m, depending on the species; between shrubs from 0.4 to 1.5 m, depending on the height of the bushes. The approach of trees from the trunk axis to buildings and structures is accepted: to buildings - at least 5 m, from the sole or inner face of retaining walls - at least 3 m, from underground networks (pipelines) - 1.5 - 2 m, from electric cables - 2 m.
Strips of green spaces are often used for laying underground networks. It is not allowed to lay any nets directly under the trees. When placing networks in the strips of plantings, it is necessary to observe the shortest distances from the tree trunk to the pipeline, channel, or cables. The same requirement is also met when laying networks in strips of plantings with shrubs: for a gas pipeline - at least 2 m, for a heating network (from the channel wall) - at least | m and from an electric cable - at least 0.5 m. The width of the green space strips adopted by the purpose and type of plantings is taken into account when determining the full width of the street.
When designing streets, attention is paid to green spaces and their place in the plan and transverse profile of the street. The choice of the type of landscaping of streets is determined by the width of the street and its purpose, the size of traffic and pedestrians, the nature of the development, and local climate conditions. The species of trees and shrubs are established taking into account local breeds, sanitary and hygienic (protective from noise and air pollution by exhaust gases of transport) qualities, and decorativeness, in combination with buildings and other elements of the street.
Landscaping of streets and squares with relatively large territories (boulevards, squares, gardens) is designed by the general landscaping project of the city as a whole.

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