ABSTRACT

The thesis topic is “Modeling behavior of traffic flows in a city”.

Bachelor’s thesis: 94 p., 21 fig., 7 tabl., 2 appendices and 14 sources.

This paper deals with one of the most important problems of modern cities - the failure of the road network to cope with the traffic flow and as a result, the occurrence of traffic jams. There is a review of existing models used to describe and evaluate performance transport networks, selected the best.

The problem is complex and not limited to the subject of traffic flows moving across the city and separately with each other in the scale of lanes on the road. It was therefore drawn attention to aspects that could help improve the situation, or that have a direct negative impact on the city roads downloading. Either way, the key to solving tasks can only be a system solution that can efficiently affect all the necessary elements spheres of interaction models that will be built.

The work is based solely on publicly available data, which was obtained after the processing of materials online writing resources and appropriate programs and treatment data conversion using the programming language Python, data obtained by natural means, ie measuring vehicle speed, quantity, density and so on. Used online resources "Yandex Maps», «OpenStreetMap», «CartoDB», principal analyst data and graph were implemented in Matlab environment and the programming language Python.

TRAFFIC FLOW, LEADER FOLLOWING, ELASTICITY INDICATOR, TRANSPORT NETWORK, FREEWAY, HYDRODYNAMIC MOVEMENT, TWO-FLUID MODEL