

ТЕЗИ ДОПОВІДЕЙ

10-ї Міжнародної науково-технічної конференції

**«ПРОБЛЕМИ НАДІЙНОСТІ ТА ДОВГОВІЧНОСТІ
ІНЖЕНЕРНИХ СПОРУД І БУДІВЕЛЬ
НА ЗАЛІЗНИЧНОМУ ТРАНСПОРТІ»**



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UKRAINIAN STATE UNIVERSITY OF RAILWAY TRANSPORT

**Тези доповідей 10-ої Міжнародної
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**«ПРОБЛЕМИ НАДІЙНОСТІ ТА ДОВГОВІЧНОСТІ
ІНЖЕНЕРНИХ СПОРУД І БУДІВЕЛЬ
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Abstracts of the 10th International Scientific and Technical Conference

**«RELIABILITY AND DURABILITY OF RAILWAY TRANSPORT
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10-а Міжнародна науково-технічна конференція «Проблеми надійності та довговічності інженерних споруд і будівель на залізничному транспорті», Харків, 20-22 листопада 2024 р.: Тези доповідей. - Харків: УкрДУЗТ, 2024. - 225 с.

Збірник містить тези доповідей науковців вищих навчальних закладів України та інших країн, підприємств транспортної та будівельної галузі за трьома напрямками: залізниці, автомобільні дороги, промисловий транспорт і геодезичне забезпечення; будівельні конструкції, будівлі та споруди; будівельні матеріали, захист і ремонт конструкцій та споруд.

10th International Scientific and Technical Conference "Reliability and durability of railway transport engineering structures and buildings" Kharkiv, November 20-22, 2024: Abstracts. - Kharkiv: UkrSURT, 2024. - 225 p.

The proceedings include abstracts of presentations by researchers from higher education institutions in Ukraine and other countries, as well as representatives of enterprises in the transport and construction industries. The topics are organized into three main areas: railways, highways, industrial transport, and geodetic support; building structures, buildings, and facilities; and construction materials, including the protection and repair of structures and facilities.

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principles, immediate action limits, interventions, and track renewal rates. Moreover, it is greatly visible that open track is more standardized than closed track.

The benchmarking approach can serve as a decision-making tool for scientists, policymakers, transit authorities, and urban planners, promoting targeted investments and policy interventions to enhance the effectiveness and sustainability of tram networks globally. Based on the results, standardization is desirable, as it can foster uniformity in best practices and facilitate the exchange of knowledge and resources across regions, leading to more efficient and scalable improvements in tram systems worldwide.

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SURVEYING THE TERRAIN AND OBSERVING DAMAGE AND DESTRUCTION OF INFRASTRUCTURE FACILITIES AS A RESULT OF HOSTILITIES ON THE TERRITORY OF UKRAINE

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The infrastructure was almost the first to take the brunt of a full-scale war at dawn on February 24, 2022, and the enemy still does not stop his attacks. In addition to damage, infrastructure suffers less visible but no less painful financial and economic losses (fig. 1-2).



Fig. 1. Sleepy district of Mykolaiv
(April 27, 2023)



Fig. 2. Destruction of the Kakhovka
hydroelectric dam (June 6, 2023)

The situation is given for constant monitoring and watchfulness for damages and ruins for further analysis and assessment of damages, restoration and survival of entrances for reconstruction, as well as for the investigation of victims in importantly accessible areas, or places with active combat actions.

Modern technologies of monitoring systems and safeguarding effective tools for capturing and removing objective information about the camp of the territory, damage and destruction caused by combat actions. The variety of drones, satellites, video surveillance systems, seismic sensors and other advanced technologies allow the collection of many data and images, so that we can then analyze that aria to understand the conflict.

Drone is a mobile tool with high detail of data. If the height of the drone's skyline sounds within the range of 100 to 300 meters above the ground, then you can take pictures of the building in centimeters per pixel.

Drones allow you to collect a large amount of information in the shortest terms. The peculiarity of drones is the possibility of using spectral cameras, which allow take photographs in the near infrared spectrum. On the basis of such signs, NEVI-indexes are considered.

Drones can be both strong and weak sides.

Among the pluses are the efficiency of capture, mobility, high accuracy (\varnothing 2 cm), the possibility of capture in the minds of darkness.

And among the minuses - the influx of weather minds on the quality of the results, the visibility of the zones, where it is not possible to carry out a survey (the territory of airports, military and regime facilities), the height of the yoke drone.

Today, drones are one of the best technologies that open up new horizons. But, unfortunately, the russian federation of victorious advanced technologies for driving in, ruining that grief. Launching unmanned apart at night, ix richly folded in the air and hitting the targets at the hour.

The analysis of the received data allows us to find out the scale of destruction and damage, to determine the priorities of recovery and reconstruction, as well as to direct the necessary resources to the recovery of the most affected areas. A comprehensive overview of the situation also helps the government, international organizations and

humanitarian agencies to make informed decisions and provide the necessary assistance to rebuild and support affected communities.

The purpose of surveying the area with monitoring and surveillance systems is not only to record damage and destruction, but also to provide a reliable basis for reconstruction and recovery. Analyzing the collected data, it is possible to reveal the adequacy of housing, medical and social services, which are necessary for the return of people to a normal life. Surveying the area also helps to identify environmental problems, such as pollution of water sources or damage to the natural environment, which can have long-term consequences for the ecosystem and the health of residents.

Scientific analysis of the collected data allows establishing the causes and consequences of hostilities, to determine the dependence between destruction and the use of certain weapons or tactics, as well as to improve the strategies of international organizations and humanitarian agencies in the prevention and management of conflicts. In addition, this data can be used to formulate recovery policies, spatial planning and prevention of similar conflicts in the future.

Ukraine faced great challenges as a result of hostilities on its territory. Analyzing damage and destruction using monitoring and surveillance systems has become an integral part of the recovery and reconstruction process. Such an analysis allows obtaining objective data, setting priorities and developing a recovery strategy, and also contributes to the safety of residents and the creation of a stable and ecologically clean environment.

However, it is important to remember that proper recovery and promotion of peaceful life in the affected areas requires not only technology and analytical approach, but also great efforts and joint action on the part of the government, international partners, public and local residents. It is necessary to ensure the effective coordination of works, as well as the involvement of the necessary financial, technical and human resources for the restoration of the affected areas and the support of communities.

As a result of the study, it will be possible to draw a conclusion about the importance of monitoring and surveillance systems in the process of restoration and reconstruction of the affected regions of Ukraine. Such systems provide an opportunity to obtain objective information necessary for making informed decisions and implementing effective recovery measures.